THE SCOTTISH TIMBER TRADE, 1680 TO 1800

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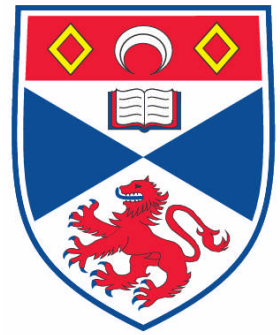

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ABSTRACT

'The Scottish Timber Trade, 1680 to 1800' examines the structural change in the source, level and form of Scotland's imports of softwood timber between 1680 and 1800. The thesis is divided into geographical and chronological sections which trace change in the trade as Norway's dominant position was undermined by alternative supplies from Sweden, Russia and Prussia.

Within each chapter an attempt is made to gauge the true extent of imports through a comparison of the available statistical sources; such as government records, port books and merchants' accounts. These sources are also used to measure the changing level and source of imports, and the level and distribution of timber imports throughout Scotland's ports. Where necessary detailed tables have been provided within the text, while other statistical tables and graphs have been set apart at the end of the thesis.

The various trading methods relative to each area are analysed; in particular, the role of Scottish merchants living overseas, the use of Consular officials, and the growing importance of shipmasters.

The changing cost of timber imports is examined, and the relative importance of prime cost in country of origin, transportation costs, and import duties on arrival in Scotland. Comparisons are made between the timber and policies of different countries to explain Scotland's particular preferences at various points in time.

The changing form of timber imports is discussed, with particular reference to size, shape and quality as an influence in determining the source of imports. Also, the role of timber as a subsiduary cargo and links with other goods are examined as evidence for the rise or decline of particular geographical regions.

The thesis includes an examination of Scotland's own timber resources and the reasons why these failed to compete with imports, in particular, quality, transportation costs and technology. Also, a case-study is presented on a Scottish region, Orkney, where change in form and source did not take place.

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INTRODUCTION

To contemporaries Scotland's imports of timber were recognised as an important sector of the country's foreign trade; in both 1573 and 1663 the Scottish government made exceptions of merchants trading with Norway from bans on salt and specie exports respectively. A similar understanding of the timber trade's strategic importance for the Scottish economy was shown by mercantilist pamphleteers on the eve of the Union of 1707; in contrast to other sectors, trade with Norway was described in terms such as 'necessary' and 'useful'. Moreover, in 1787 Bernt Anker, a Norwegian timber merchant told his Scottish correspondent, 'in human society wood is as necessary as bread'. [1]

A detailed statistical analysis of the nature of Scotland's timber trade and of its relative importance within the import trade is first possible from 1755 with production of the first report of the Inspector-General for Imports and Exports, (see Appendix 1).[2]

In 1755 Scotland imported over two dozen different forms of timber with an Official value of over £49,000; this accounted for just over a tenth of Scotland's foreign imports, valued at £465,412. Timber imports were more important in terms of the proportion of shipping they occupied; the Scottish port books for 1755 record the arrival of 780 vessels from abroad of which 260, exactly one-third, carried timber cargoes.[3]

Timber imports into Scotland were diverse in form, source and value. However, the Inspector-General's report shows three distinct subdivisions within the trade; this study concerns the import into Scotland of softwood timber, a trade dominated by 'measurable timber', in the form of deals and balks, used in the construction industry. These imports arrived mainly from Norway, Sweden and the Baltic and were valued at over £27,000 in 1755. By 1790 imports of softwood timber had risen in value to over £66,000.[4]

The second subdivision in the timber trade involved imports from the Americas; the West Indies sent exotic hardwoods such as mahogany, valued at £2,791 in 1755, while the American colonies and Canada provided hardwoods such as oak and walnut, valued at £4,216 in 1755.

The American colonies were also Scotland's leading source of barrel staves; these were carried gratis as ballast and packaging alongside tobacco cargoes, and were valued at £14,275 in 1755. In all American timber accounted for £22,337 of Scotland's £234,888 worth of American imports in 1755. By 1790 Scotland's timber imports from the Americas had risen in value to over £37,000.[5]

The third subdivision in the timber trade concerned the import of timber by-products such as tar and ashes; these items arrived from various sources, including Canada, Norway and Poland, but in 1755 only Holland sent more than £1,000 worth of either item. By 1790 however, £2,347 worth of tar arrived from the United States, £6,328 worth from Russia and £463 worth from Norway. With the expansion of demand from the textile industry imports of ashes for bleaching expanded to £32,923 with Russia and the United States sending £10,309 and £14,801 worth respectively.

The great variety of timber items imported into Scotland is perhaps the main reason why no comprehensive study of Scotland's timber trade in the eighteenth century has been undertaken. For example, with regard to Russia during the late eighteenth century Alastair Durie noted:

> Timber was imported in a variety of shapes and sizes - there being at least 50 categories in the customs ledgers - so it is nigh impossible to calculate the volumes involved.[6]

Nevertheless, a variety of secondary sources have been produced which throw light on various aspects of Scotland's timber trade between 1680 and 1800.

In Scottish Trade on the Eve of Union, 1660-1707 T.C.Smout provides a detailed analysis of Scotland's timber trade with Norway during the late seventeenth century. Unfortunately, Smout's conclusions on the level of imports; their distribution around Scotland; and the relative importance of various Norwegian ports, must all be seen as tentative due to the weaknesses of the available statistical evidence, especially the Scottish port books of the period. Nevertheless, Smcut draws upon

extensive primary sources to detail the mechanisms of the trade, including shipping, merchants and finance.[7] A useful parallel to Smout's findings is provided by the more recent work of A.Lillehammer, who in'The Scottish-Norwegian Timber Trade in the Stavanger Area in the Sixteenth and Seventeenth Centuries' provides a Norwegian perspective on the trade. Although Lillehammer restricts himself to one Norwegian west coast region the importance of the west coast in general within Scotland's timber trade makes Lillehammer's work of central importance.[8]

Unfortunately, the timber trade during the eighteenth century has little to compare with the work of Smout and Lillehammer, at least with regard to Norway. However, H.Marwick's two volume work Merchant Lairds of Long Ago combines a valuable collection of primary sources with an analysis of Orkney's general economy and overseas trade c.1700 to 1730. Because of the importance of Norway in the islands' economy, and their dependence upon Scottish shipping, Marwick's study is not only useful for details on Orkney's timber trade but for the Scottish timber trade as a whole.[9] Marwick's books are the only significant secondary source of information on Orkney's timber imports during the eighteenth century, a remarkable situation given the wealth of primary evidence available in the archive papers of Thomas Balfour and William Watt jnr. The only other Scottish secondary source to provide evidence for the Norwegian timber trade during the eighteenth century is Inveraray and the Dukes of Argyll by Lindsay and Cosh. The authors provide a detailed examination of the supply of timber for building work at Inveraray between c.1745 and 1760. This period was particularly important within the Scottish timber trade as it saw the emergence of rival sources of supply, including Sweden and Russia. Lindsay and Cosh give a detailed breakdown of each shipment, especially the manner in which it was ordered and its quality and size, so their work allows detailed comparisons to be made between each source. Unfortunately, no attempt is made to set these particular cargoes within the context of Scotland's timber trade as a whole.[10]

Ironically, the most useful secondary sources of information on Scotland's timber trade with Norway are two works in which Scctland is seen as of minimal importance and is actually wrongly portrayed. At a time when

Scotland's timber trade with Norway was dominated by the south coast port of Christiansand, H.S.K. Kent in 'The Anglo-Norwegian Timber Trade in the Eighteenth Century' wrote:

> Few shipments from southern Norway to Scotland can be traced. Scotland received its timber, a fraction of English imports, from western Norway, particularly from Trondheim and also from Bergen. The Scottish trade appears to have been practically exclusively a barter trade.[11]

In War and Trade in Northern Seas in which Kent examines Anglo-Scandanavian diplomatic and commercial contacts between 1750 and 1770 he begins his examination of the timber trade by stating:

> British commercial relations with Denmark-Norway were dominated by the timber trade in which England had the main share, to the virtual exclusion of Scotland which participated in it only through freighting for the English importer.[12]

Unfortunately, Kent relied upon Norwegian sources for information on the extent of Scotland's timber trade. Moreover, his study treats Britain's trade with Norway as synonymous with the whole timber trade; although he examines the period 1750 to 1770,when Baltic supplies began to dominate the British market,little mention is made of this development. However, Kent's work is useful for its examination of the methods used to purchase timber, including the 'consignment' and 'agency' systems, and also the role of consuls in foreign ports.

One important difference between the Scottish and English timber trades was the role of Sweden as a supplier of cut timber. Kent has shown that in mid-century Sweden supplied less than ten per cent of England's deal imports. However, Scotland imported almost half of her deal imports from Sweden at that time.

Several studies of various aspects of Scottish trade with Sweden during the eighteenth century have appeared recently; these include: Goran Behre, 'Scots in Little London'; J.G.Duncan, 'Trade and traders: some links between Sweden and the ports of Montrose and Arbroath 1742-1830';

E-B Grage, 'Scottish merchants in Gothenburg'.[13] These articles draw heavily on the research of A.A.Cormack,especially his Susan Carnegie 1744-1821, her life of service for information on the Scottish merchant community in Gothenburg. However, only Grage provides information on Scotland's timber trade with Sweden, her article provides valuable statistics on timber exports from Gothenburg to Scotland between 1771 and 1800.[14]

The picture for secondary sources on Scotland's timber trade with Russia is similar to that of Sweden; several general studies of British-Russian trade have been produced: these include: D.S. Macmillan, 'The Scottish-Russian Trade: Its Development, Fluctuations, and Difficulties 1750-1796' and 'Problems in the Scottish Trade with Russia in the Eighteenth Century: A Study of Mercantile Frustration'; A.J. Durie, 'Russia's Role in the Industrialisation of Scotland' and 'Linen, Flax and Iron: The British Linen Company and the Baltic': .H.H. Kaplan, 'Russia's Impact on the Industrial Revolution in Great Britain during the Eighteenth Century: The Significance of International Commerce' and 'Russian Commerce and British Industry: A Case Study in Resource Scarcity in the Eighteenth Century'; A. Kahan, 'Eighteenth-Century Russian-British Trade: Russia's contribution to the Industrial Revolution in Great Britain '.[15] Unfortunately, these sources concentrate on imports of flax, hemp and iron rather than timber; partly because these items were more costly, but also because timber imports from Russia are difficult to enumerate, as H.H. Kaplan noted:

> it is nearly impossible to develop an equivalent and accurate comparison between the imports from Russia and other countries because of variation in sizes,shapes and different kinds of wcods imported into Britain.[16]

Nevertheless, Kaplan does provide a useful examination of exports of Fir timber from Riga, while Kahan includes an analysis of the fluctuating price of Russian Fir timber between 1765 and 1784.

In fact, the most useful sources of information on the Scottish timber trade with Russia are a series of articles by S-E Astrom: 'Technology and

timber exports from the Gulf of Finland, 1661-1740'; 'English Timber Imports from Northern Europe in the Eighteenth Century'; North European Timber Exports to Great Britain, 1760-1810; 'British Timber Imports from the Baltic, 1775-1825'. [17] Astrom provides specific details on the different sizes of Russian timber imported into Grangemouth and Leith, but his articles make little mention of Scotland. Indeed, what he does say is inaccurate; he argues that Scottish deal imports fluctuated from a half to a third of the English level when in fact they only averaged 8.5 per cent between 1755 and 1800. Moreover, Astrom states Norway sent a larger proportion of Scotland's deal imports than England, where it provided 70 per cent of demand. Unfortunately, Astrom's conclusions are based on limited use of the evidence. By 1800 Norway supplied only 46 per cent of Scotland's deal imports.[18]

Nevertheless, Astrom's findings on the changing structure of the European timber trade; his work on freight rates and his comparison of Russian and Swedish government policies, are all of great importance. Moreover, Astrom's articles and his book, From Tar to Timber: Studies in Northeast European Forest Exploitation and Foreign Trade, 1660-1860 are the only secondary sources to provide information on the growth of the timber trade from Prussia and the port of Memel.[19]

Memel developed into Scotland's major supplier of timber during the latter part of the eighteenth century. It is ironic then that so few secondary sources on Memel are available compared to Scotland's own timber resources; are examined in a great variety of books and articles, but singularly failed to meet the nation's timber needs.

In his two-volume work A History of Scottish Forestry M.L.Anderson presents an extensive collection of primary sources on Scotland's native timber resources. However, perhaps because the books were completed posthumously, the narrative and interpretation given alongside these sources is often questionable, particularly with regard to marketing Scottish timber.[20] Another useful general text is The Native Pinewoods of Scotland by H.M. Steven and A.Carlisle, especially on the extent of Scottish resources and the role of climate in limiting Scottish woodland. However, no attempt

is made to examine the general situation in the eighteenth century, instead specific regions are examined in turn, but again while several useful primary sources and quotations are presented, little attempt is made at interpretation.[21] Several articles examine specific woodland regions in Scotland including: 'William Lorimer on Forestry in the Central Highlands in the early 1760's ' and 'Forestry in Strathspey in the 1760's' by G.A. Dixon; 'The Black Wood of Rannoch' by A.Whayman; 'The Golden Groves of Abernethy' by J.Munro.[22] Excellent work is presented by J.M.Lindsay in his 'The Commercial Use of Woodland and Coppice Management' and 'Some Aspects of Timber Supply in the Highlands, 1700-1850'. However, Lindsay is primarily concerned with management techniques and the coppicing of hardwocd timber, although he does provide a very useful examination of the sale and marketing of softwood timber from Rannoch.[23]

Obviously, a great many secondary works provide information on specific aspects of Scotland's timber trade; however, their range and diversity is an indication of the problems involved in a study of this topic. No single primary source provides enough detail on Scotland's demand for softwood timber; to give a full analysis of the level, form and source of Scottish timber imports between 1680 and 1800 it is necessary to collate together a wide range of source material, from both Scotland and abroad.

Footnotes

1. J.Davidson and A.Gray The Scottish Staple at Veere (1909), p.92; T.C. Smout, Scottish Trade on the Eve of Union 1660-1707 (1963), p.153; Riksarkivet, Osla,Privatarkiver No.3, Bernt Anker Copybook.

2. Scottish Record Office
Annual reports of the Inspector-General of Imports and Exports, RH2/4, RH20, 1755.

3. SRO, RH2/4, RH20, 1755; SRO, Customs Quarterly port books E504,1755.

4. SRO, RH2/4, RH20, 1755 and 1790.

5. Ibid.

6. A.Durie, 'Russia's Role in the Industrialisation of Scotland', A.G. Cross (ed.), Russia and the West in the Eighteenth Century (1983), p. 341.

7. Smout (1963), op.cit.

8. A.Lillehammer, 'The Scottish-Norwegian Timber Trade in the Stavanger Area in the Sixteenth and Seventeenth Centuries', in T.C.Smout (ed.), Scotland and Europe (1988).

9. H.Marwick, Merchant Lairds of Long Ago (1936 and 1939), 2 vols.

10. I.G.Lindsay and M.Cosh, Inveraray and the Dukes of Argyll (1973)

11. H.S.K. Kent, 'The Anglo-Norwegian Timber Trade in the Eighteenth Century', Economic History Review 8 (1955).

12. H.S.K. Kent, War and Trade in Northern Seas (1973), p.39.

13. G.Behre, 'Scots in 'Little London'. Scots Settlers and Cultural Development in Gothenburg in the Eighteenth Century', Northern Scotland, 7, no. 2 (1987), J.G.Duncan, 'Trade and traders: some links between Sweden and the ports of Montrose and Arbroath 1742-1830', Northern Scotland, 7 no. 1 (1986); E.-B. Grage, 'Scottish Merchants in Gothenburg' T.C.Smout (ed.) Scotland and Europe (1988)

14. A.A.Cormack, Susan Carnegie 1744-1821, her life of service (1966)

15. D.S.Macmillan, 'The Scottish-Russian Trade: Its Development, Fluctuations and Difficulties 1750-1796', Canadian Slavic Studies 4 (1970); D.S. Macmillan, 'Problems in the Scottish trade with Russia in the Eighteenth Century: A Study in mercantile frustration', A.G.Cross (ed.) Great Britain and Russia in the Eighteenth Century: Contacts and Comparisons (1979); Durie (1983), loc.cit. A.Durie, 'Linen, Flax and Iron: The British Linen Company and the Baltic', Study Group on Eighteenth Century Russia Newsletter 3 (1975); H.H.Kaplan, 'Russian Commerce and British Industry: A Case Study in Resource Scarcity in the Eighteenth Century', A.G.Cross (ed.) Russia and the West in the Eighteenth Century (1983); H.H.Kaplan, 'Russia's Impact on the Industrial Revolution in Great Britain during the second half of the Eighteenth Century: The Significance of International Commerce', Forschunen Zur Osteuropaischen Geschichte (1981); A. Kahan, 'Eighteenth-Century Russian-British Trade: Russia's Contribution to the Industrial Revolution in Great Britain', A.G.Cross,Great Britain and Russia in the Eighteenth Century: Contacts and Comparisons (1979)

16. Kaplan (1983), loc.cit., p.327.

17. S.-E. Astrom, 'Technology and timber exports from the Gulf of Finland', Scandinavian Economic History Review 23 (1975); S.-E.Astrom, 'English Timber Imports from Northern Europe in the Eighteenth Century', The Scandinavian Economic History Review 18 (1970); S.-E.Astrom, 'North European timber exports to Great Britain 1760-1810', P.L.Cottrell and D.H.Aldcroft (eds.) Shipping, trade and commerce, Essays in memory of Ralph Davis (1981); S.-E.Astrom, 'British Timber Imports from the Baltic 1775-1825', W.E.Minchinton (ed.) Britain and the Northern Seas (1986).

18. SRO, RH2/4, RH20, 1800. See Appendix 2.

19. S.-E.Astrom, From Tar to Timber:Studies in Northeast Europe Forest Exploitation and Foreign Trade, 1660-1860 (1988)

20. M.L.Anderson, A History of Scottish Forestry (1967), 2 vols.

21. H.M.Steven and A.Carlisle, The Native Pinewoods of Scotland (1959).

22. G.A.Dixon, 'Forestry in Strathspey in the 1760's ', Scottish Forestry 32 (1977); G.A.Dixon, 'William Lorimer on Forestry in the Central Highlands in the early 1760's ', Scottish Forestry 29 (1974); A.Whayman,' The Black Wood of Rannoch', Scottish Forestry 19 (1965); J.Munroe, 'The Golden Groves of Abernethy', G.Cruickshank (ed.), A Sense of Place (1988).

23. J.M.Lindsay, 'The Commercial Use of Woodland and Coppice Management', M.L.Slater and T.R.Parry (eds.), The Making of the Scottish Countryside (1980); J.M.Lindsay, 'Some Aspects of Timber Supply in the Highlands, 1700-1850', Scottish Studies 19, (1975) p.46.

CHAPTER ONE

SCOTLAND'S TIMBER TRADE WITH NORWAY

By 1680 the Scottish-Norwegian timber trade had already been well established for several centuries; however, detailed information is only available from the sixteenth century onwards. By that time the Scottish government was well aware of the importance of the trade; in 1563 an Ambassador was sent to Denmark/Norway to secure for Scottish merchants the right to purchase timber, which had recently been withdrawn. An Act of 1573 which forbade the export of salt exempted timber importers because the Norwegian trade was regarded as essential to the Scottish economy. [1]

By the sixteenth century several Scottish merchants had settled in Bergen; in 1523 the Scottish merchant community lost goods valued at 400,000 marks during a riot led by Hansa merchants. Scottish merchants sat on the Bergen town council and one Scot, Little Thomas was Burgomaster of the town, 'a godly, pious and upright man.' The Scots in Bergen were described by a German in 1684. Of the Bergen merchant community he wrote:

> Fowls of all colours all mixed together: rats and Scots, (one had almost said scoundrels), Shetlanders, Orcadians and Faeroese, these are folk who in truth are of no benefit to the country but of greatest harm, of whom Herr Herman Muntzer, German priest in St Martin's Church in Bergen once in a sermon recited this verse: 'The rat, the Scot, the Hollander and such like - are everyway destructive; where they are, nothing can thrive.' [2]

Scotland's trade with Norway appears to have been centred on the fiords of Sunnhordland and Ryfylke between Bergen and Stavanger. In 1567 32 vessels sailed for Scotland from Sunnhordland and 28 vessels sailed from Ryfylke, and in 1621 85 ships left Sunnhordland for Scotland while another 89 left Ryfylke. During the early seventeenth century exports from Ryfylke peaked at 115 vessels in 1619. [3]

In Scottish Trade on the Eve of Union T.C.Smout provides a detailed examination of Scotland's timber trade in the latter part of the seventeenth century. At that time Scotland's timber needs were met almost exclusively through trade with Norway. [4] Sources such as the Baltic Sound Toll Register and the Gothenburg Port books detail the limited impact of supplies from Sweden, Russia and Prussia, while Scotland's own timber resources remained outwith the national market due to high transportation costs. [5]

Unfortunately, the limitations of the available sources, customs and bullion books, make it impossible to draw up a detailed picture of Scotland's timber trade with Norway at the end of the seventeenth century to compare with that of the eighteenth century. For example, the details provided in individual port books from c. 1742 onwards, including the vessels home port, port of departure and a detailed cargo manifest, are seldom found in sources for the 1680's and 1690's.[6] Nevertheless, T.C. Smout has used the available sources to make a series of tentative conclusions on the level and structure of Scotland's timber trade: during the period 1686-96 Scotland imported an annual average of 3,000 great hundreds of deals, with the vast majority of this substantial figure arriving from Norway. Indeed, between 1680 and 1686 over 1,000 vessels arrived from Norway, almost one-third of all vessels arriving in Scotland from overseas.[7] However, we have no precise picture of the relative importance of individual Norwegian ports; vessels' origins were often omitted or given simply as 'Norroway'. Examples can be found of all the important Norwegian ports, from Trondheim in the north-west to Halden in the south-east but the west coast ports especially Bergen, appear predominant, while many vessels continued the traditional practise of collecting a cargo 'at the woods' in the Sognefiord and Sunnhordland regions of western Norway. Smout has estimated that in peace time Scottish ships carried around 90 per cent of the Norway trade. Within Scotland the Leith customs precinct dominated, attracting 34.8 per cent, of deal imports between 1685 and 1695. Leith was followed by Port Glasgow with 15.1 per cent, Bo'ness with 11.2 per cent, Prestonpans with 9 per cent and Kirkcaldy with 7.7 per cent respectively.[8]

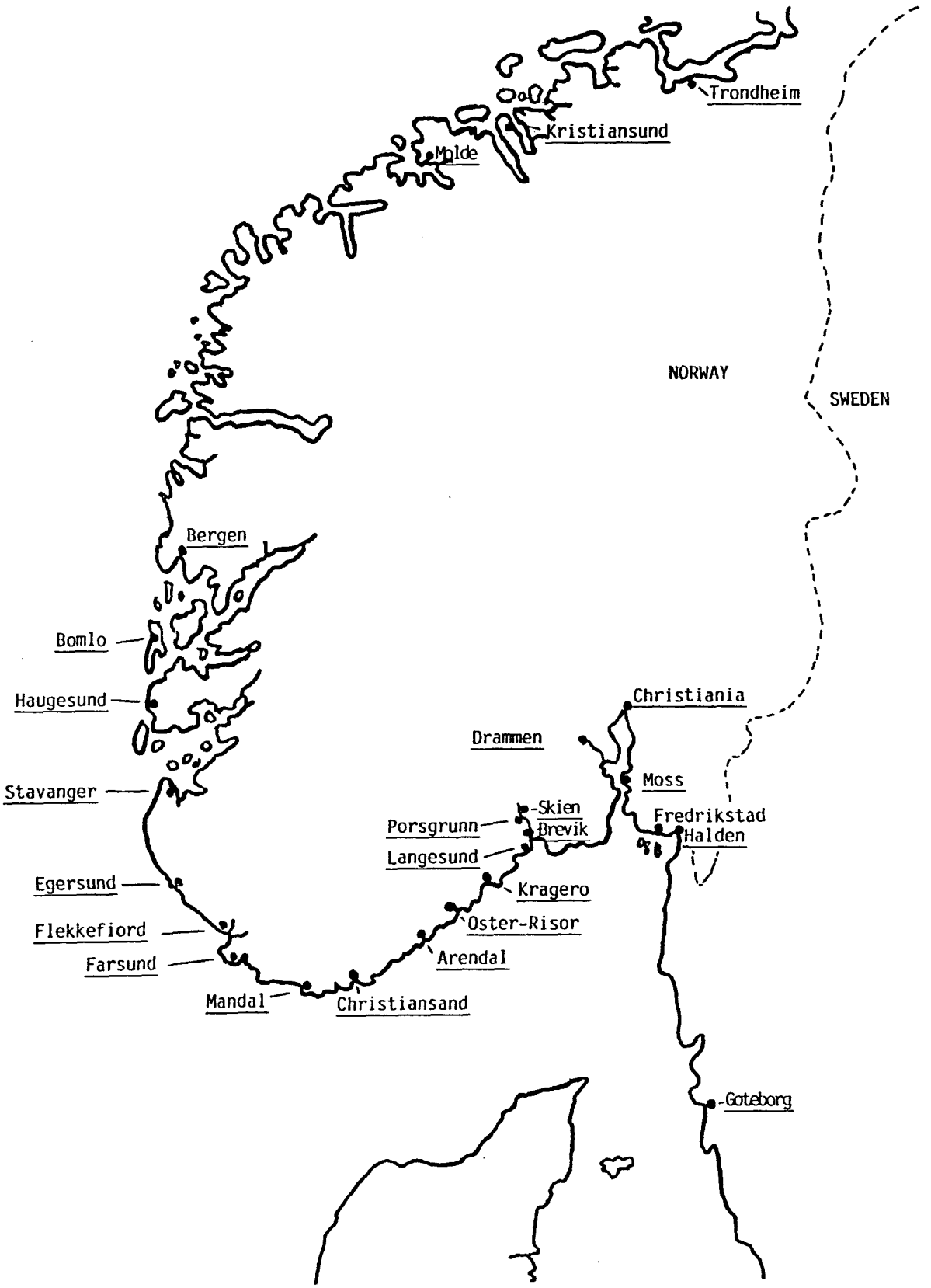
In terms of both bulk and value the form of Scotland's pre-Union timber imports from Norway were dominated by deals, sawn fir planks of varying lengths and 'trees', fir balks known as Fir timber in eighteenth century Scotland, or 'whole timber' in English records from that period. Smout also mentions a variety of other timber products shipped along with deals and trees, domestic and agricultural implements such as 'harrow bills' and 'bed stoupes' as well as items for shipbuilding and maintenance, including spars, masts, oars, and knees.[9]

Some of the timber products and utensils brought from Norway are recalled in an old shetland poem, Lawrence Williamson of Mid Yell:

An he wis twice at Drunton
For fraghts o tar an deals,
An troughs an Norwa ladles
An skovy kaps an wheels.
(wooden cups and spinning wheels)[10]

'Drunton' was the Scottish version of Trondheim, while another important port of the period, Kristiansund was known as 'Foysound' The various Norwegian ports used by Scots during the period 1680 to 1800 are shown on the map overleaf. Of course, until the mid-eighteenth century a great many vessels never tied up at a port at all, but anchored in the woods.

TIMBER EXPORTING PORTS LINKED WITH SCOTLAND, 1680 - 1800



Additional information on the Scottish-Norwegian timber trade is provided by Norwegian sources: primary sources such as the Norwegian port books and the work of historians such as Arnvid Lillehammer who has examined Scotland's timber trade with the Ryfylke region in western Norway.[11]

During the period 1680 to 1800 the manner in which cargoes of Norwegian timber were imported into Scotland changed dramatically. In his study of the timber trade between Scotland and the Ryfylke region, the fiords lying north of Stavanger in western Norway, the Norwegian historian Arnvid Lillehammer has examined the traditional method which saw Scottish shipmasters buying their cargoes directly 'in the woods' from local farmers; an intimate relationship between buyer and seller which avoided intermediaries - much to the chagrin of merchants in Stavanger the region's main port. Such was the level of trade and the personal nature of contact that in the oral tradition of the Ryfylke area the sixteenth and seventeenth centuries are still called 'the Scottish Period', while the shipmaster - farmer link has been commemorated in the region's folk-lore.[12]

Lillehammer has shown that the direct method of purchasing timber cargoes in the fiords of Ryfylke came under increasing pressure from Stavanger merchants; from 1686 all vessels had to call at Stavanger on their inward and outward journeys, and from 1717 a royal resolution ensured the privileges of Stavanger and forbade Scots from trading in the fiords From 1717 all timber in the Stavanger area had to be carried to the port itself before being carried abroad.[13]

Although Scotland's timber trade with the fiords of Ryfylke collapsed after 1717, both the trade itself, and the method used, appear to have been transferred directly to the fiords of Sunnhordland, the area lying north of Ryfylke and south Bergen, western Norway's major port. In 1731, the first year in which trade statistics are available for all of Norway, Sunnhordland was the leading source of timber exports to Scotland; 62 vessels carried a total of 1,216 lasts of timber to Scotland, this represents 39 per cent of all vessels sailing between Norway and Scotland and 37 per cent of all the timber carried.[14]

Although the traditional method of organising timber cargoes directly continued in use until the mid-eighteenth century other,more complex trade techniques were already in use in the 1680's and 1690's with timber merchants in Scotland drawing upon the local knowledge and expertise of several Scottish merchants resident in the ports of western Norway, men such as James Philip and James Gordon in Bergen and Henry Percy in Trondheim.

The presence of a fellow national in a foreign port was of inestimable benefit to Scottish merchants trading abroad; Scottish merchants in Bergen and Trondheim provided details on the Norwegian market and any available business opportunities while their regular correspondents in Scotland could rely on their abilities,trustworthiness and credit. Moreover, a personal contact in Norway was of particular importance at a time when an estimated 90 per cent of vessels in the Scottish-Norwegian timber trade were Scottish - owned. For a commission of $2\frac{1}{2}$ per cent men like Percy and Gordon would ensure that the correct quantity and quality of timber was purchased and loaded without delay, and also that the correct payments and customs duties were paid - or perhaps evaded when possible. [15]

An excellent example of the way in which the timber trade was organised between fellow Scottish merchants at home and abroad is provided by the correspondence between William Lambe in Edinburgh and James Percy in Trondheim in 1690 to 1691. Timber imports into Scotland were organised in two ways; generally Lambe freighted a Scottish vessel to collect a cargo which had been purchased on his behalf by Percy in Trondheim. If the vessel carried goods from Scotland their sale was organised by Percy and the proceeds offset the cost of timber, duties and commission in Trondheim. Percy maintained a current account for Lambe and, apart from the sale of goods imported from Scotland, received payment either in specie or by bill of exchange. However, Percy was also involved in the Scottish timber trade on his own account, freighting Scottish vessels through Lambe to carry Percy's timber to Scotland where it was held and sold on commission by Lambe, a method known as selling 'on consignment'. [16]

Norwegian timber arrived in Scotland by one other method; this involved Norwegian captains sailing down the Scottish coast seeking a market for their cargo at various ports. Touting for custom in this fashion included selling 'at the mast' in which the Scottish customer purchased timber at the quayside and paid all duties himself. For example, in 1683 William Lambe noted that he had purchased 87 hundred deals, 'bought from a stranger at the mast'.[17] In 1698 Charles Ogilvy, a Montrose baillie, wrote to Alexander Pyper in Edinburgh about the unexpected arrival of a Foysound (Kristiansund) vessel with a substantial timber cargo. Ogilvy asked if he should bother to make the captain an offer 'for you know so great a quantity can hardly be disposed of to profit in this country'.[18]

Although we cannot be precise, taken together sources including the Scottish port books, the Register of Deeds and merchants' papers suggest that the Scottish-Norwegian timber trade in the late seventeenth century was centred upon the ports and fiords of western Norway and involved Scottish vessels either trading directly 'in the woods', or carrying cargoes for Scottish merchants and their fellow nationals in ports from Trondheim to Stavanger. Although examples can be found of cargoes arriving from most of the ports of southern and eastern Norway these were of less significant, perhaps reflecting the important role of Scottish grain exports in shaping the timber trade. With a population of 15,000 the city of Bergen was far and away the most considerable of Norwegian towns, and also the centre of the grain trade. By contrast, the capital Christiania had a population of only 4,000 and geographically looked south to Denmark rather than west to Scotland for its needs.[19]

The dominance of Scottish vessels within the timber trade was enhanced by the poor opinion of Norwegian skippers held by Scottish merchants; in fact, after his experiences with one Norwegian captain William Coutts, a Montrose merchant, swore he would never employ a Norwegian skipper again.[20] However, the effect of privateers during the wars with France between 1690 and 1713 was to lead to an greater reliance on neutral Norwegian vessels which were less likely to be attacked. As early as 1690 Scottish captains were refusing charter parties 'because of the apparent danger of privateers'.[21] Scottish merchants turned to Norwegian skippers to meet

their needs; in 1696 an Eyemouth merchant, Philip Hood, purchased a timber cargo from Michael Knudsen of Stavanger and asked the vessel's captain to freight another two Norwegian vessels for him.[22] Again, in 1705 when several Orkney merchants freighted the Sun of Bergen, captain Peter Johnston,for a return voyage carrying grain and timber, the charter party included the proviso that:

> the skipper also freight a ship of about 30 lasts to come hither about the latter end of February... the ship must be a free Danish bottom navigated with a Danish master and crew.. the importer bearing all risque and charges and delivering them free at Kirkwall (deals and spurs), the customs at Kirkwall to be paid by the buyers.[23]

Due to the high cost of freight within the timber trade the issue of ownership is an important one, especially in any attempt to assess the trade balance between Scotland and Norway; for example, T.C.Smout has suggested that the predominance of Scottish-owned vessels within the timber trade with Norway did much to offset a negative trade balance at the end of the seventeenth century.[24] However, the issue of ownership was seldom clear cut, particularly during wartime when Scottish merchants often purchased Norwegian registered vessels to ensure regular supplies by claiming neutral status. For example, in 1709 the Maria of Bergen, captain Joen Soffrensen, sailed between Limekilns and Bergen with cargoes of coal and timber; in fact, this Norwegian registered and crewed vessel was owned by George Winram, an Eyemouth merchant.[25]

Unfortunately, very little information has survived on the Scottish-Norwegian timber trade in the early part of the eighteenth century. However, by implication, it appears that this was a period of deep depression within the Scottish-Norwegian trade. This is suggested indirectly by the recorded level of English deal imports which suffered a substantial decline in the early eighteenth century, and is also implied by the steady increase in Scottish timber imports from the port of Gothenburg in western Sweden and through the Baltic Sound Toll from eastern Sweden. Together these sources suggest the Scottish-Norwegian

timber trade suffered a two-fold decline in the level of imports into Scotland: in a period of trade depression Norwegian supplies also faced increasing competition from other suppliers. [26]

Several primary sources provide statistical information on the level and structure of the Scottish-Norwegian timber trade during the eighteenth century. 1731 is the first year with a (near) complete coverage in the Norwegian port books (the figures for Arendal refer to 1730): 1733 is the next available year, but the continuous series of port books only begins in 1751. These sources provide detailed information on all vessels leaving every Norwegian port, including its name, nationality, home port and destination, as well as the captain's name and the cargo carried in cubic capacity, that is in timber lasts. Table 1 has been drawn up from the Norwegian port books for 1731, 1733, 1755 and 1785 and allows us to examine not only the changing level of timber exports from Norway to Scotland, but also the shifting proportional share held by each port and geographical region along with Norwegian seaboard through time. [27]

The Norwegian port books for 1731 and 1733 record the departure of 245 and 220 vessels for Scotland respectively carrying 4,623 and 4,157 lasts of timber. These figures suggest a slight increase in the level of trade compared to the years 1680-6 when figures provided by T.C.Smout give an annual average of 170 vessels arriving in Scotland from Norway. [28]

More detailed analysis of the Norwegian figures for 1731 and 1733 illustrates the continuing regional predominance of west coast ports over those of Norway's southern and eastern coast. In 1731 the ports and fiords from Trondheim to Stavanger were the source of 145 vessels and 2,665 lasts of timber; that is, 59 per cent of vessels involved in the Scottish-Norwegian timber trade and 58 per cent of the cargo. The region's figures for 1733 are broadly similar; western Norway accounted for the departure of 133 vessels carrying 2,234 lasts of timber - 61 per cent of all vessels and 54 per cent of cargo. By contrast, the ports of the Agder region on the south coast of Norway, from Flekkefiord to Oster-risor, sent only 36 per cent of vessels and 35 per cent of cargo in 1731 and 33 per cent of vessels and 40 per cent of cargo in 1733.

The Norwegian port books for 1731 also illustrate the continuing dominance of Scottish shipping within the timber trade; of the 245 vessels listed as departing for Scotland only 30 were Norwegian. However, when other sources become available with which we can gauge the veracity of the Norwegian port books it may appear that they themselves are misleading on the true structure of the Scottish-Norwegian timber trade.

In Scotland the continuous series of port books for each Customs Precinct begins c. 1742. Although this source of statistical information is similar to its Norwegian counterpart it is generally more specific with regard to both the source and form of timber imported in each vessel: in the Scottish port books the Norwegian port of departure is given, while in the Norwegian port books only Scotland is usually given as a destination. The Norwegian port books do provide details on the type of timber carried, such as deals and Fir timber, but the Norwegian historian Steiner Kjaerheim has shown this information to be completely unreliable. While under entry in the Scottish port books averaged around 10 to 15 per cent Kjaerheim shows discrepancies between declared and actual cargoes as high as 65 per cent.[29]

The Scottish port books have been drawn upon for Tables 2 to 7; these show the number of deals imported into each Customs Precinct in Scotland for the years 1744, 1755, 1765, 1775, 1785 and 1795, while Tables 8 to 13 provide similar details for the other major timber type imported, Fir timber, for the same years. Each precinct's share of batten imports for 1785 and 1795 are shown in Tables 14 and 15, and Tables 16 to 18 show the number of vessels sailing from each Norwegian port to specific Scottish Customs Precincts during 1744, 1755 and 1785. The Scottish port books also provide a source of information for tables which have been included within the text; for example, p.49 shows the recorded dates of arrival for vessels entered from Norway during 1785; details used on p.51 show the geographical distribution of Norwegian ports recorded in 1785, with the amount of deals sent by each, and on p.55 the arrivals recorded in each Scottish precinct are compared with the Norwegian port book evidence to provide a detailed insight into the accuracy of each source and the manner in which they distort the actual geographical distribution of the Scottish-Norwegian timber trade.

From 1755 onwards the annual reports of the Inspector-General in Scotland provide a further source of statistics; these reports list the amount of each form of timber imported into Scotland from specific countries. Tables 22 to 24 list Scotland's import of deals, Fir timber and battens between 1755 and 1800. These figures not only allow us to check the accuracy of statistics compiled from individual port books, but also allow an examination of fluctuations in the level of particular imports through time. Moreover, the annual reports allow us to gauge the changing level of imports and the proportion of this total held by Norway in comparison to rivals such as Prussia,Russia and Sweden. Finally, Table 25 shows the level of imports from Norway for less important items such as middle and small balks.[30]

By comparing the evidence on Scottish trade found in the Norwegian port books for 1755 with their Scottish counterparts we can reach a series of conclusions on the veracity and usefulness of both sources, and also, to some extent, the accuracy of the Norwegian port books for 1731 and 1733 when no alternative source of information is available.

In 1755 the level of imports of timber from Norway, at 3,859 timber lasts, was similar to the total of 4,157 lasts recorded in the Norwegian port books for 1733, but the number of vessels involved had fallen from 220 to 106. The Norwegian port books suggest a change took place in the structure of the Scottish-Norwegian timber trade between 1731 and 1755; in 1731 western Norway supplied 59 per cent of vessels and 58 per cent of cargo-by 1755 its share had fallen to 38 per cent and 36 per cent respectively. By contrast, the ports of southern Norway which in 1731 sent 36 per cent of ships and 35 per cent of cargo now provided 54 per cent of vessels and 56 per cent of cargo. Eastern Norway remained relatively unimportant at this time providing only 8 per cent of vessels and 8 per cent of cargo.

Of the 106 vessels recorded in the 1755 Norwegian port books as departing for Scotland only 80 can be traced in the Scottish port books. This problem was most severe in the west coast of Norway; ports in that region list 40 departures for Scotland, but only 24 ships appear in the Scottish port books. Scottish merchants and ships captains played an important role in

the general economy of western Norway at this time and were heavily involved in shipping timber to Ireland; it would appear that a vessel's destination was often confused with its captain's nationality. This problem was less severe in the ports of southern Norway where departures for Scotland were proportionally less important and Scottish vessels and nationals less evident. Indeed, the problem was reversed; while Scottish departures were over-estimated in the west, in southern Norway they were under-estimated. In 1755, 57 vessels are recorded in the port books of southern Norway as leaving for Scotland, but 84 ships from southern Norway are listed in the Scottish port books. Also, 15 vessels which are recorded in the Scottish port books as arriving from south coast ports are listed in Norwegian sources as departing for England or Ireland. To some extent the Norwegian records under-estimate of Scottish departures from the south coast reflects the trading methods used, with ships captains sailing without a precise destination in mind and touting for business down the British coast- it is significant that 12 of the 15 wrongly recorded vessels were Norwegian nationals. It would appear then that the Norwegian port books seriously distort the true structure of the Scottish-Norwegian timber trade in 1755; they exaggerate the importance of western Norway, a region in decline (at least in terms of direct timber shipments to Scotland) and they underestimate the contribution of an increasingly important source of both deals and Fir timber, the Agder region of southern Norway. However, the implications of this for the years 1731 and 1733 when no corroborating evidence is available to match with the Norwegian port books are unclear; certainly in western Norway Scottish involvement in shipping timber to Ireland was already strong. For example,in 1731 of the 83 foreign departures from Trondheim 18 vessels were Scottish, 9 went to Scotland but 11 sailed with timber for Ireland. While this may suggest that the significance of western Norway was somewhat exaggerated in 1731 and 1733 it seems less clear that the ports of southern Norway were under-represented in the Norwegian port books for those years.

In contrast to the Norwegian port books the Scottish port books for 1744 and 1755 imply a more significant proportion of the Scottish-Norwegian timber trade was held by the ports of southern Norway, and by Christiansand in particular; of the 158 recorded arrivals from Norway Christiansand was

the leading source, sending 26 vessels. Moreover, divided by region Scotland received 64,68 and 7 vessels from ports in western, southern and eastern Norway respectively. In the 1755 port books Christiansand was again the leading source of vessels with 38 recorded out of a total of 123 ships arriving in Scotland from Norway: by region western, southern and eastern Norway supplied 24,84 and 15 vessels respectively.

However, a detailed examination of the Scottish statistics for 1744 and 1755 combined with a cross check on the veracity of the Scottish port books with their Norwegian counterparts suggests that the share of the timber trade held by the ports of southern Norway was not seriously underestimated in the port books of 1731 and 1733, but rather the region and Christiansand in particular developed in significance in the two decades prior to 1755. Moreover, the Scottish port books for 1755 exaggerated the collapse of western Norway as a source of imports, and the share of the timber trade held by the ports of southern Norway lay closer to the 54 per cent figure suggested by the Norwegian sources than the 68 per cent share in the Scottish port books.

It is curious that of all the Agder ports Christiansand should have developed close links with Scotland; the port lies at the mouth of Setesdal valley, which reaches 143 miles into the heart of southern Norway. Local legends argue that the inhabitants, the Setesdoler, are the descendants of Scottish settlers who went there to replace the previous inhabitants, who died during the 'Black Death'. This fact is used to explain their 'dour' manner. [31]

In 1744 Scotland imported a total of 703 loads of Fir timber; by 1755 this figure had risen to 2,101 loads. Imports of Fir timber into the Leith Customs Precinct grew from 173 loads in 1744 to 721 loads in 1755. Within the Norwegian timber trade the ports of the Agder region in southern Norway grew in relative importance as they sent mixed cargoes of timber, including Fir timber as well as deals, to meet Scotland's growing demand for that form of timber. In 1755 of the 1,766 loads of Fir timber imported into Scotland from Norway 403 loads were actually Baltic timber shipped as 'copenhagen fir', but of the remainder only 17 loads arrived from outwith the Agder region and Christiansand alone supplied 425 loads.

Ironically, while the trading methods used caused the Norwegian port books of 1755 to seriously under value the contribution of Christiansand with 25 departures, the Scottish port books exaggerate its significance with 38 vessels. By cross checking between the two sources it is possible to trace 31 vessels arriving in Scotland from Christiansand; this figure still leaves it the leading port in Scotland's timber trade with Norway. The leading role of the port and the regular arrival of vessels from Christiansand led Scottish customs officers to confuse vessels arriving from the west coast of Kristiansund with Christiansand - in 1755 this happened to 7 vessels. To conclude, taken together the various Norwegian and Scottish port books for 1731, 1733, 1744 and 1755 suggest a more gradual shift in the orientation of the Scottish-Norwegian timber trade, from ports in western Norway to those along the south coast. However, the dominance of the former region was less than the Norwegian port books of 1731 and 1733 suggest, while the latter region was less important than the Scottish port books of 1755 imply.

It is ironic that the 1730's and 1740's should have seen a shift in the orientation of the Scottish timber trade with Norway, particularly a decline in supplies from western Norway, because those decades saw a rapid expansion in the Scottish merchant community in the ports of western Norway. This expansion was the result of a remarkable agreement between George II and his son-in-law, Frederick of Denmark/Norway. The agreement allowed Scottish episcopalians to settle and trade in Norway, free of taxes on their profits.[32] These merchants could return to Scotland with their capital within 20 years of their arrival, provided they did not marry a local. For Frederick the agreement encouraged an influx of much needed foreign investment and expertise, while for George II it was hoped the agreement would lessen the Jacobite tendencies of his subjects, especially in north-east Scotland - a region in which the landowning classes were often episcopalian. Several Scots took advantage of the agreement; John and David Ramsay, Alexander Abercromby, Archibald Borthwick, William Gordon jnr. and George Leslie of Banff all settled in Kristiansund. In 1761 W.Beawes noted that the commerce of Trondheim was dominated by Scottish shippers and merchants.[33] The activities of Scottish merchants in western Norway might actually be one reason for the decline in the region's 'barter' trade in primary products with Scotland. Due to their business acumen Scottish merchants developed alternative trading

opportunities; more precisely, they are credited with introducing the method of curing cod by splitting, salting and drying in the sun, and so created and developed the klipfisk industry. Scottish vessels taking grain to western Norway could then take more profitable freights carrying dried salt cod to the Baltic and particularly to Catholic Spain and Portugal. [34]

The geographical shift in the orientation of the Scottish-Norwegian timber trade during the eighteenth century, and the growing importance of the port of Christiansand in particular was due in no small part to a series of personal links which were established at various times.

In 1715 George Jolly, an Anstruther shipmaster, purchased a 100 ton vessel in Gothenburg on behalf of his 31 year old brother Stephen and a group of Prestonpans merchants, including Richard and Charles Sherriff. Over the next 13 years Stephen Jolly and his 8 man crew sailed on a series of voyages throughout the North Sea and Baltic on behalf of Prestonpans merchants such as James Mudie, Thomas Mathie and the Sherriff brothers. Jolly's overseas connections included the Gothenburg merchants, Chamber and Pearson, John Hall, Hugh Ross and John Forrester; Andrew Waddell in Memel Edward Smyth in Christiansand and Giert Torrison in Mandal. On 26 September 1721 Stephen Jolly was created a burgess freeman and guild brother in his home port of Anstruther east. Two years previously Jolly established a trading connection which was to establish not only a close personal friendship, but also a trade link of great significance for the Scottish-Norwegian trade in general.[35]

In 1719 Richard Sherriff wrote to Jolly and asked him to help establish a correspondence with 'an honest and substantial man in Christiansand and inform him of our design to employ him in our affairs. The connection established by Jolly was with the brothers Thomas and Christian Muldrup and over the next decade Jolly sailed on several trips between Prestonpans and Christiansand.[36]

In May 1728 as he lay dying onboard his ship in the clove of Mandal Jolly wrote to his good friends; he asked Thomas and Christian to dispose of his cargo of grain and return the Concord to Prestonpans with a cargo of timber. Jolly

also asked that they take an inventory of his goods and papers and see everything was passed onto his heir, his sister Isabella. The Muldrups did as Jolly asked and informed Isabella of the death of 'Stephen our wellwisher, we have reason to believe in favour with god and man.. he was buried creditably in the churchyard of Mandal'. [37]

The Sherriff brothers, Richard and Charles, died in 1739 and 1740 respectively. They were suceeded by their nephew Charles a Leith based timber merchant who dominated the port's trade with Norway during the 1740's. Apart from his timber business Sherriff was the factor for the lead producing Scotsmine Co. During the rest of the eighteenth century various descendants of Charles Sherriff continued to operate in the Leith timber trade.[38]

With the exception of Sherriff one of the most regularly mentioned names in the Leith port books from 1742 onwards is that of Alex Skirving. Until his death in 1764 Skirving, who lived in the Leith timber bush (yard), held the position of measurer and tacksman; this involved measuring the incoming timber cargoes for the payment of import duties, and also collecting ground rent for timber stored in the timber bush.[39] Perhaps more importantly Skirving acted as an agent for sales of Norwegian timber; the office of agent was well established in London, but Skirving was the first known to hold the position in Scotland. In London agents in the Norwegian timber trade financed the timber trade without normally engaging in the sale of timber themselves; for a customary fee of 2% to 2½% agents such as Collet, Heide and Petersen advised Norwegian merchants of the likely demand for timber in London, found purchasers, arranged insurance on cargoes, took delivery of shipments and directed them to the purchasers yard. London agents provided credit for their Norwegian principals, allowing them to draw bills of exchange as soon as a cargo was dispatched. Purchasers were also given credit; normally half the amount due for a cargo was paid in four months bills, one month being allowed for unloading, and the balance paid in cash.[40]

It is unclear whether Skirving involved himself in the financial role undertaken by English agents; we do know that he acted as a go-between for Norwegian shippers and Scottish purchasers, and that he was used as an 'honest broker' in disputes between Scots and Norwegians.[41] However, Skirving's testament,

with large holdings of timber on stock and substantial depts owed by timber wrights, suggests that he was personally participating in the timber trade.[42] Whatever the case it is clear that Skirving's activities were much appreciated in Norway; just prior to his death a group of Norwegian merchants in Christiansand sent over their own representative to take over the role of agent from Skirving: the new agent based in Leith was Christian Muldrup, the eldest son of Thomas Muldrup and a merchant with over two decades experience in the timber trade between Leith and Christiansand. Muldrup's position as agent was greatly strengthened in April 1763 when, following a petition to Copenhagen by Christiansand merchants, he was appointed Danish Consul. As consul Muldrup would provide the Danish/ Norwegian government with reports on trade conditions, log all arriving Danish-Norwegian nationals with an account of their voyage and collect a consular fee. He was empowered to settle disputes between any of his fellow nationals, but could not use his office to force anyone to trade with him. However, the main purpose of his appointment was that it was thought the office would be an indication to Scottish customs authorities and clients of Muldrup's standing and respectability. [43]

An indication of Christian Muldrup's role in promoting the timber trade between Christiansand and Scotland is provided in the letter-books of the Carron Ironworks. In April 1765 Williams Cadell jnr. the company's general manager wrote to the Danish Consul:

> We are informed that the sales of Norway timber since the death of Alex Skirving is to pass through your hands - we shall be glad to know if you can supply us with a cargo of 100 to 150 tons of logs deals and trees, how soon at what price and when payable-to be delivered at Carron harbour where a vessel of 150 tons can come with safety.[44]

After receiving Muldrup's information Carron ordered a cargo of approximately 100 tons. Later in the year further correspondence between Muldrup and Cadell provides detailed information on the type and cost of timber items from Norway:

Leith 1st Oct 1765

Sir,

I offered the cargo you have here below of a note to your father, which you can see by the inclosed letter, wherein he desires me to send you one express, Mr.Wilson also told me you wanted a cargo, you have therefore here a note of said cargo with its prices-

15 doz: 9 pieces small long timber)	all fresh and good
9 doz: 10 " short logs)	at 8d per foot
52 doz: double 12 ells	at £9 per hundred
22 doz: single "	at £6 " "
23 doz: of 10 ells	at £3.10 " "
17 doz uffers from 24-36 ft long	at £7 " "
6 doz round 18 feet trees	at £5 " "
7 doz: 7 pieces small oak 7-12 ft long at 14d per ft	
7 pair oars	
2 spars 48 ft long	15/-
1 " 30 ft "	7/-
32 tubs of pitch	at 3/- per tub
5 doz 2 inch deals 11-12ft long	at £7 per hundred
10 " single " "	at £4 " "

With £2 hart money for the master to run up at Carron wharff if required, one half of the amount in money the rest with a bill in four months..

Yours sc. Chr.Muldrup [45]

Muldrup's offer illustrates not only the great variety of different timber items imported from Norway, but also the growing importance of Fir timber rather than deals, the old staple. This development is charted in Tables 23 and 25 which lists imports of Fir timber, middle and small balks from Norway between 1755 and 1800. [46]

Cadell's brothers operated as timber importers in Prestonpans, and they too had dealings with the Danish Consul; in 1782 they note the arrival of the Two Brothers from Christiansand and also a Mandal vessel with 3,000 ft

of logs and 11 great hundred deals -'the Danish Consul let us have him,' [47] By this time Christian Muldrup had died and his office had passed to Thomas Muldrup who continued as Consul throughout the rest of the century. In 1799 Hugh Arbuckle of Queensferry wrote that:

> he is in expectation of receiving a cargo of wood from a Mr. Slider of Norway and that Mr. Thomas Muldrup Danish Consul at Leith has the management of that business and that the cargo is coming on board the ship called the Lion of Easterozer. [48]

The Montrose papers provide an excellent source of information on the organisation of the Scottish-Norwegian timber trade in the mid-eighteenth century; between 1749 and 1750 substantial amounts of timber were needed for building work at Buchanan, the home of the Duke of Montrose, near Drymen on the east side of Loch Lomond. [49] The building work at Buchanan, was directed by the architect John Adam; in 1749 Montrose sought advice on the best method of importing timber from Lord Hopetoun, another of Adam's employers. Because of the position of Buchanan Montrose had the option of purchasing his timber through ports in the Forth or the Clyde: Hopetoun's opinion was that, 'the cheapest way to be provided is in the mouth of the Clyde but would advise you bargain with a Forth man to deliver it there'. Hopetoun suggested that Montrose should try Duncan Glasford, a Bo'ness shipmaster...'ask him to deliver per ton (40 cubic feet) of square timber at Dumbarton, he paying the Custom House and every other charge and risque.' Above all Hopetoun said 'try all and compare proposals.' [50]

In another letter Hopetoun passed on advice to Montrose which, as we will see, he should have given to another nobleman, the Duke of Argyll:

> My lord thinks by getting the timber in Clyde will be more advantageous than in the Forth, considering the difference in land carriage, but is not against your trying it from Forth also. He indeed is strongly against your freighting a ship yourself, as that would bring you into a labyrinth of troubles and besides your running sea risque might turn out dearer than a merchant will furnish it for. [51]

Hopetoun's insistence on Montrose shipping timber via the Clyde rather the Forth may have been linked to his reluctance to lend Montrose his own carts and carters for the carriage of timber from Alloa. In Feb.1749 Montrose sought the opinion of William Christie,the Provost of Stirling; Christie told him:

> Norway to the Clyde, is vastly longer than to Alloa, and requires different winds to perform it, which makes it very precarious, so he cannot and thinks that none else can, furnish timber in Clyde under ¼ more than at Alloa. So that the foot of wood, that costs 10d at Alloa, will be 12d at Port Glasgow or Greenock.[52]

In fact, Montrose compromised and purchased cargoes of timber to be delivered at both Alloa and Port Glasgow, paying 10d and 15d per cubic foot respectively.

Montrose also contacted the saw-mill in Alloa; the growth of such mills in Scottish ports, cutting Fir timber into any required specification, was one reason for the growing shift in the timber trade from deals to Fir timber. The mill had no timber in stock, but offered to cut it for Montrose later in the season, they also recommended ordering a Norwegian timber cargo through Provost Christie and Duncan Glasford (who spoke the language), ' do it in company, you cannot be better provided nor deal with honester men'. [53]

During the summer of 1749 Montrose purchased over £110 worth of Fir timber and deals in Alloa, however, it cost almost £12 more for the carts to carry the timber on a two day journey via Stirling, Gargunnock, Kippen and Buchlyvie - the route of the present day A811. [54]

Montrose also purchased a cargo of timber in Port Glasgow from Baillie Allan Dreghorn. Dreghorn was a Glasgow burgess and gild brother; as well as his business as a leading timber merchant Dreghorn was an important architect, designing both St.Andrew's Church (1739) and the Town Hall in Glasgow (1737-40). He was also a partner in the Smithfield Iron Works as well as a lead merchant and plumber. After Dreghorn's death in 1766 the timber and lead businesses passed to Michael Bogle and Scott until Michael Bogle's death in 1799. The port book entries suggest that Bogle and Scott were among the leading Scottish timber importers.[55]

In July 1749 Montrose purchased 67 loads of Fir timber from Dreghorn at 15d per cubic foot, making £209. This timber was floated from Port Glasgow to the water of Leven by Dunbarton from the water of Leven the timber was carried via Loch Lomond to the water of Endwich and from there to Buchanan. The total cost of this water carriage was £13.13.8d; that is 6½ per cent of actual cost in Port Glasgow, this compares well with cost of land carriage from Alloa at 10 per cent.[56]
The cargo of timber which Montrose purchased from Dreghorn was not, however, Norwegian timber, although the Danish captain Bee was registered in the Danish port of Abenra. Captain Bee provides one example of the Danish/Norwegian vessels which, in the mind-eighteenth century, broke the British Navigation Acts and brought in Baltic Fir timber.[57]

Captain Bee provides a useful link between the building work being carried out by Montrose and that of the Duke of Argyll at Inverary; the cargo purchased by Dreghorn on Montrose's behalf had actually been ordered by Argyll. This was the second occasion on which Bee let down the Duke of Argyll; a previous Inverary-bound cargo of Norwegian deals was sold by Bee in Larne, thus avoiding the long voyage round Kintyre and up Loch Fyne. To compound Argyll's distaste for organising cargoes through foreign skippers or Scottish merchants the Larne merchant then offered the cargo to Argyll - at a much inflated price![58]

The extensive building work carried out by the Duke of Argyll on Inverary New Town and Castle between 1744 and 1760 demanded substantial amounts of timber. In all, Argyll purchased at least thirteen cargoes of timber; of these six vessels carried deals and Fir timber from Norway directly, while two ships brought Gothenburg deals round the coast from the timber bush in Leith. Five other vessels brought Baltic Fir timber to Inverary; three in the form of 'copenhagen fir' by Danish vessels and two in Gothenburg registered ships- the former to avoid British Navigation Laws and the latter to elude privateers in 1760. The extent of Argyll's demand for timber and the survival of much of the relevant correspondence combines to present a unique insight into the Scottish timber trade in the mid-eighteenth century. In particular, Argyll's papers show the variety of methods employed in bringing foreign timber into Scotland; expecially the often haphazard manner in which cargoes arrived.

The first timber purchased by Argyll in 1744 was a cargo of 'copenhagen fir' wrecked on the island of Tiree. Argyll was unsuccessful in bidding for two further timber cargoes wrecked on Barra and the Stranraer coast.[59] Wreck timber, both the vessels themselves and also their cargoes, formed an important source of timber in the North and West of Scotland. In Orkney for example the low-lying island of Sanday proved a particular hazard to shipping and acted as a virtual storehouse, supplying timber throughout the islands. During a service the Rev. William Grant is reputed to have prayed, 'Nevertheless if it please Thee to cause helpless ships to be cast on the shore, oh! dinna forget the puir island of Sanday'.[60] In 1733 Thomas Gifford of Shetland noted:

> The timber brought here from Norway is very dear, and the poor inhabitants are not able to buy it. So many of them depend upon that wreck timber, which they call godsend..and therewith they repair their small houses.[61]

While such activities may appear localised and somewhat prosaic, we should also note the acumen of one Orcadian, Dr. David Balfour of Shapinsay During the 1780's Balfour developed business contacts throughout Britain and Europe acting as an agent for the owners of distressed vessels. Moreover, he also made substantial profits with Rathbone and Co. of Liverpool by purchasing wrecked timber cheaply at roups in Orkney and then reshipping it for sale in more lucrative markets.[62]

Between 1747 and 1751 Lord Milton, on behalf of the Duke of Argyll, had considerable difficulty in arranging timber supplies; Captain Bee's cargo was eventually purchased from a Larne merchant called Shutter, but attempts to persuade either Bee or Peter Frelsen, the captain whose vessel was wrecked on Tiree, to bring more timber proved unsuccessful. To meet immediate emergenc several parcels of timber were purchased from Clydeside merchants, however, the prices asked for complete cargoes and the behaviour of Dreghorn made Argyll's advisors keen on the idea of avoiding Clydeside middle-men.[63] Normally, in times of difficulty such as war Scots needing timber would send a direct contract to a Norwegian merchant who would then assemble a cargo and arrange for its shipment. However, this method was not used, perhaps due to the advice of Bailie John Wilson of Edinburgh who wrote to Milton that:

> the Factors in Sweden and Russia are men of greater Character and Stocks than the Norwegians generally are, for we can allways depend upon a good Cargo from the former, but verry rarely from the latter.[64]

In 1752 Lord Milton used his connections in the British Linen Company to charter three vessels to bring timber from Norway, and hired an agent, James Hay a Prestonpans merchant, to rendezvous with the vessels at Moss or the neighbouring port of Langesund.[65]

In March 1752 the Annabella, master Thomas Knox, was chartered at Saltcoats at a freight rate of 32/- per great hundred deals plus two-thirds port charges and a £6 payment to the captain for sailing up Loch Fyne. The chartering of the Annabella illustrates some of the complexities involved in arranging timber freights; Knox only agreed to sail for Moss after unsuccessfully trying for a Virginian freight in Greenock, while the low freight rate of 32/- was due to Milton's decision to allow Annabella to follow a triangular route-carrying tobacco to France before sailing for Moss.[66] The experiences of James Hay during the four months it took him to arrange three timber cargoes for Milton in Norway show just how accurate Hopetoun was when he advised Montrose not to involve himself directly in the timber trade:

> He(Hopetoun) is strongly against your freighting a ship yourself, as that would bring you into a labyrinth of troubles.[67]

In his examination of English timber imports in the Eighteenth century Sven-Erik Astrom wrote of Norway's growing inability to satisfy Europe's increased demand for timber, in particular Norway faced a serious shortage of large-dimensional timber.[68] James Hay's experiences in Norway on behalf of the Duke of Argyll provide a picturesque illustration of Astrom's analysis. Hay arrived in the port of Brevik in eastern Norway in mid-April. However, no timber was available; spring had arrived late and the rivers which brought down the logs and powered the saw-mills remained frozen. The ports were crammed with vessels; many of these had ordered cargoes on commission during the previous winter and so held prior claim before Hay. Norwegian merchants urged Hay to return in mid-June when the new

season's timber would float down the fiords with the melting snows. Hay stayed, and eventually by scouring the neighbouring ports he was able to collect a cargo for the Betty, but its quality left much to be desired:

> I don't know what can be made of it at Inveraray, but I have no choice..those sorts that were particularly ordered by by My Lord Milton cannot be got at this time, nor am I certain as yet whether this Country can produce them.. Deals are not to be got for any money. I could not procure as many as stow up the ship which has obliged me to buy for that end a good deale of ramble.. all this considered has given me so much pain, as to make me heartily wish I had not engadged in this affair.[69]

In Norway in 1752 demand had obviously far outstripped supply: 'The Country was almost emptied last year.. price rising daily, the people here themselves acknowledge they have never seen it so before.' [70] Moreover, the Betty's cargo shows the difficulty Norway was having in supplying timber of an adequate length; most of the deals were actually 'half-deals' or 'cuts' from 5 to 8 feet in length, while the Fir timber measured only 15 to 20 feet in length. Hay himself noted the problems involved in ensuring timber was of adequate size:

> I set imediatly about squaring and shipping the timber and had shiped about two thirds of the pieces contained in my Lord Miltons note when I observed the timber come out too smale for the dimensions required and I doubt shall have very great difficulty to make up the remainder this was impossible for me to forsee for all this timber lyes in the water till it is called for and when taken ashore and squared most be for the buyers account.[71]

Lord Milton had been told of the difficulties regarding the size of Norwegian timber by his colleagues from the British Linen Company, Charles and Robert Fall, merchants of Dunbar:

> The wood in Norway may be had some cheaper, but then its inferiour in quality, and unless bespoke a long time before, can not be had of the exact dimensions. [72]

Although James Hay eventually fulfilled his commission and supplied three cargoes of timber his experiences were such that from 1752 onwards Argyll's timber needs were met either by Scottish merchants experienced in the trade, or by passing Norwegian vessels.

Such was the reputation of Inverary that Norwegian merchants instructed shipmasters carrying speculative cargoes down the west coast of Britain to call in at Inverary in the hope of making a sale; in 1754 Robert Campbell of Asknish, the estate accountant, purchased the cargo of the Hibernia, Captain Sven Olsen Flink, from the Christiansand merchant Edward Smyth. Flink's freight agreement with Smyth was simply 'from Christiansand to Ireland or Inverary.' [73] Smyth's shrewd business stroke was the result of a chance meeting between his son and Asknish in Edinburgh the previous year; as Asknish wrote:

> both the Owner and Capt. are Strangers to this Country but having heard of the Works My Lord Duke is carrying on they have Judg'd that a merchant might be had for timber here.[74]

Following Hay's Norwegian trip the only cargoes of Norwegian timber purchased were those arranged by either Norwegians such as Smyth, or by Scottish merchants such as Robert Cormack of Edinburgh who hoped to ingratiate himself with Milton and Argyll. Increasingly, supplies of timber for Inverary came from either Sweden or the Baltic; size was one reason for this. In 1754 Cormack provided a mixed cargo of Fir timber from both Norway and the Baltic; the Norwegian logs averaged 12 feet in length, while the Baltic logs averaged 24½ feet. [75]

Another of Lord Milton's contacts from the British Linen Company, Bailie John Wilson of Edinburgh, 'a Considerable Timber Merchant', also pointed out the problems involved in purchasing Norwegian timber, these including both poor quality of Norwegian timber compared to its Swedish and Baltic rivals and the probity of Norwegian merchants:

> most of the Norway logs has a great deall of blew wood upon them, and Tapers so much that before they are brought to a sqr a fourth part of the wood must be hewn off, wheras the Other is all squard from end to end and nothing left but reed wood.[76]

Wilson's analysis accords with Astrom's view on the exhaustion of Norwegian stands of timber:

> the best they call upland and the Worst Lowland which are Blinded togither for the most part when sent to us, so that your Lop will plainly see how easy it is for them to impose upon us unless they are men of Strict integrity.[77]

Norway's proximity to Scotland was perhaps its greatest advantage: cargoes of timber could be brought over in a matter of days from Norway, compared to the months involved in a journey from the Baltic. At Inverary it was essential to have timber supplies on hand when they were required: immediate need led to some remarkable decisions. For example, in 1757 the Adams brothers, the renowned architects, supplied 16,000 ft of Gothenburg deals from their store in the Leith timber bush; as these had to be shipped coastwise to Inverary their final cost was greatly inflated to £24 per great hundred - in essence, this figure contained double freight costs, itself usually the largest single portion in the cost of imported timber.[78]

Perhaps the last word on Inverary timber and the relative quality of different sources should be left to Argyll's carpenter, George Haswell. When the final cargo of timber arrived in 1760, from Riga in Russia, he noted, 'the Cargow I think is the best that we ever had heir'. 79

In 1755 the Inspector-General's report shows that Scotland imported a total of 2,320 great hundreds of deals and 1,957 loads of Fir timber of whi 1,202 great hundreds of deals and 1,600 loads of Fir timber came from Norway. These figures closely match the Scottish Port book totals for 1755 shown in Tables 3 and 9; these suggest Scotland imported a total of 2,263 great hundred deals of which 1,228 great hundred came from Norway, and 2,101 loads of Fir timber of which 1,766 loads came from Norway.[80]

The Scottish Port books for 1755 also provide details on the distribution of timber imports throughout Scotland; with regard to deals, although Leith was the leading Customs Precinct importing a total of 387 great hundreds only 112 great hundred arrived from Norway - a figure surpassed by Greenock with 330 great hundred and Aberdeen with 175 great hundred deals from Norway. Leith was also the leading importer of Fir timber with 721 loads of which 453 loads came from Norway.

Table 17 shows the particular Norwegian port which each of the 123 vessels from Norway came from, and also the particular Scottish precinct they sailed to. Aberdeen was Scotland's leading importer attracting 30 vessels, while Leith took 13 and Greenock only 8. However, Greenock attracted substantially larger cargoes, averaging 41 great hundred deals compared to Leith's average of a great hundred and Abderdeen's of only 6 great hundred.

Table 17 also shows the dominant position of the port of Christiansand, which was the port of departure for 38 vessels. Even when the figures are readjusted due to the confusion with Kristiansund and 7 vessels are deducted Christiansand still far surpassed its nearest rival Bergen which sent only 16 vessels.

The Inspector-General's report for 1755 records the collapse of Norwegian dominance in Scottish deal imports; of the total of 2,320 great hundreds of deals only 1,202 great hundreds came from Norway, while Sweden provided 1,061 great hundreds. Moreover, while 16 different Norwegian ports shared in that country's deal exports to Scotland, all but 39 great hundreds

of the Swedish total were provided by the west coast port of Gothenburg. Competition from Gothenburg fell most severely on ports on Norway's western and eastern coasts which, like their Swedish rival, sent cargoes which were almost solely deals. Within the Norwegian timber trade the ports of the Agder region in southern Norway grew in relative importance as they alone sent mixed cargoes including Fir timber to meet Scotland's growing demand for that form of timber: in 1755 all but 17 of the 1,363 loads of Fir timber Scotland imported from Norway arrived from ports in southern Norway.

In 1755 British registered vessels dominated shipping between Norway and Scotland: of the 123 ships recorded in the Scottish ports books only 31 were Danish/Norwegian. The Inspector-General's report provided a detailed breakdown of the amount of each form of timber carried in British or Danish/Norwegian vessels; Tables 26 and 27 and graphs 3 and 4 show the proportion of deals and Fir timber carried by each nation's vessels between 1755 and 1800. In 1755 British vessels carried 74 per cent of deal imports from Norway and 68 per cent of Fir timber imports.

The annual reports of the Inspector-General for Imports and Exports, available from 1755 until 1800, allow both an examination of the long term trends in imports of a variety of timber items from Norway, and also a comparison of the relative importance of these items within the Scottish timber trade as a whole.

Between 1755 and 1800 the level of deal imports from Norway stagnated; the annual totals fluctuated from a low point of 761 great hundreds in 1757 to 2,300 great hundreds in 1799. However, the figures in Table 22 are actually an amalgamation of the Inspector General's return for three forms of deals; Spruce, Ordinary and Cuts and they conceal substantial changes which took place within this sector.

Norway exported two species of timber to Scotland, redwood and whitewood; redwood is the timber of the Scots Pine, pinus sylvestris, while whitewood, picea abies, is the timber of the Common Spruce. To complicate matters, within the Scottish-Norwegian timber trade the term 'yellow wood' was used to describe redwood; this was the better quality and more resilient of the two species, and in Norway the more scarce. As we will see, Scottish merchants were greatly concerned to receive the correct type of timber, generally they preferred cheaper timber, either whitewood or seconds of redwood.

The term 'Spruce' deals, used in the Inspector General's returns did not refer to that particular species, indeed many 'spruce' deals were actually redwood, but to deals of greater than 20 feet in length. Due to the exhaustion of forest stands spruce deals were of little consequence in the trade between Scotland and Norway. Moreover, Scottish merchants were loath to purchase Spruce deals as they paid higher customs duties than Ordinary deals of less than 20 feet in length. For example, in 1787 Captain Thomas Kydd of the Friends delivered a cargo of timber to James Bisset of Montrose from Herman Hoe of Trondheim. However, some of the deals were 21 feet long and Bisset wrote:

> I must beg so you will manage that they may not come under the denomination of spruce deals.[81]

The majority of deal imports into Scotland came under the wide parameters of the category 'Ordinary' deals, that is deals of up to 3½in. in thickness, from 7 to 11 in. in width, and from 8 to 20 ft in length. These parameters allowed the import of deals which could differ substantially in both quality and quantity of timber; this was recognised by the customs

regulations which suggested an Official Price for Ordinary deals which ranged from £3 to £15 per great hundred. Quite apart from the categories of redwood or whitewood, best quality or seconds, each Norwegian port actual specialised in providing a particular range of sizes of Ordinary deals; for example, while Bergen usually produced deals measuring 8ft in length 2in. thick and 9in. wide, Christiania specialised in deals measuring 11ft in length, 9in. wide, and 1¼ in. or 2½ in. thick.[82] Obviously, the Inspector General's annual figures for imports of Ordinary deals from Norway cannot be accepted as a particularly accurate measure of such imports, quite apart from their inaccuracy due to smuggling in the form of under-entry of cargoes, the annual figures may have failed to distinguish important changes in the size and quality,and therefore the value, of imports of Norwegian deals into Scotland.

The lack of clarity within the annual import figures is well exemplified by a comparison between the detailed accounts of a Scottish merchant for a timber cargo from Norway and the manner in which that cargo was recorded by customs officials; in 1781 William and John Cadell of Cockenzie imported a cargo of timber from Karen Anker and sons of Christiania, recorded in the invoice as follows:

5		g.h.	13ft,	1¼in,	yellow,	best,	deals	@	26 Rd
5		"	12ft,	"	"	"	"	@	26 Rd
2		"	11ft	"	"	"	"	@	25 Rd
3		"	13ft	"	"	second,	"	@	16 Rd
3		"	12ft	"	"	"	"	@	16 Rd
3		"	13ft	3in.	whitewood,	best,	"	@	36 Rd
1		"	12ft	"	"	"	"	@	36 Rd
1		"	11ft	"	"	"	"	@	34 Rd
1	2.0	"	10ft	"	"	"	"	@	32 Rd
3	3.15	"	12ft	"	"	second	"	@	24 Rd
2	3.0	"	half	"	"	best	"	@	18 Rd
0	1.0	"	"	"	"	second	"	@	12 Rd
1	1.0	"	13ft	2½in	yellow	best	battens	@	34 Rd
1	1.0	"	12ft	"	"	"	"	@	32 Rd
6	0.0	"	"	1¼in	"	"	"	@	16 Rd
2	1.15	"	Double ends					@	6 Rd[83]

This diverse cargo contained 28.1.15 great hundreds of deals; 3 g.h. of half deals; 2.1.15. g.h. of ends of deals; and 8.2.0 g.h. of battens, with great differences in their length and quality. However, in the Port book for Prestonpans precinct, Nov.6th 1781 the cargo was entered as:

15.0.0. g.h. deals
10.0.0. g.h. battens
1.0.0. cuts making up @ 3 per deal
1.0.0. ends " " @ 6 " "

Not only was little account taken of quality and size, but only 64 per cent of the actual cargo was recorded and paid duty.[84]

During the period 1755 to 1800 the Inspector-General's annual reports record a rapid increase in imports of Cuts of deals; this category included half-deals cuts and ends, all were deals of less than 8 ft. in length. Increased imports of Cuts of deals reflected Norway's inability to produce longer lengths of timber, and also the increasing demand within the Scottish timber market for a wide range of timber. Moreover, the increase in imports of Cuts of deals, particularly from Russia and Prussia after 1787 and Pitt's Consolidation Act, reflects attempts to evade import duties by declaring timber to be smaller than it really was. Within Table 22 for Scotland's Deal imports cuts of deals have been included at a ratio of 2:1 for deals in general. Table 34 shows the annual level of imports of Cuts of deals alone. At their peak in 1792 with imports from Norway of 645 great hundred, Cuts of deals accounted for almost one-fifth of deal imports from Norway.

Scotland imported one other form of cut timber from Norway; battens were boards of narrower width, less than 7 in. but otherwise had the same dimensions as Ordinary deals. Although Scotland's total import level of battens increased steadily between 1755 and 1800 imports from Norway fluctuated greatly from year to year and actually peaked as early as 1772 with 662 great hundreds carried over. After 1787 battens became increasingl scarce in Norway; they were produced from the outer strips of a sawn log- the central wider part of the log produced deals. After the great increase

in import duties in 1787 British merchants demanded deals of as large proportions as possible, and so increased the production of 3in. thick Ordinary deals, thus reducing the timber available for battens. For example, in 1787 James Walkinshaw of Paisley ordered a cargo of 50 great hundreds of battens from Bernt Anker of Christiania. However, he was told that, 'single battens are scarce due to the demand for large timber which is usually cut.. for the duties importers wish only 3" deals'. [85]

During the latter part of the eighteenth century Scottish imports of Ordinary deals, once the dominant form of timber imported into Scotland, suffered a marked decline in their relative importance; Norwegian deals faced increased competition in Scotland from other sources of deals, specifically Sweden and Russia. Moreover, during this period Scotland's demand for deals stagnated as the Scottish market developed a preference for another form of timber, uncut fir timber balks. In contrast to deals, imports of Fir timber, the most popular type of balk, increased rapidly and by 1800 they accounted for 35 per cent of the Declared Value of Scottish timber imports, while Ordinary deals accounted for only 24 per cent. Table 22 shows that imports of deals from Sweden,which had increased dramatically from the 1730's, actually surpassed Norwegian imports in 1757. However, Swedish imports peaked between 1755 and 1765 and then declined in importance. One reason for the decline in Swedish deal imports was the emergence of Russia as a third major source of deals. Taken in isolation the Inspector-General's figures suggest that while Russian deals rivalled Swedish supplies, and indeed surpassed them several times after 1787, they never seriously rivalled imported deals from Norway. However, as early as 1774 the Edinburgh timber merchant, James Inglis jnr, suggested that:

> 'the Baltic plank cuts out the Norwegian deal'. [86]

In fact, the wide perameters provided in the Inspector-General's accounts for the size of Ordinary deals, and also their failure to take notice of quality differences led to a lack of recognition of the true importance of Russian deals. To some extent, this situation was remedied in the Inspector General's report for 1800 when 'Declared Values' were provided

for each form of imported timber, giving a clear indication of their relative value.

From 1755 imports of Ordinary deals recorded in the Inspector-General's accounts were provided with an 'Official Price' of £3 to £15 per great hundred; this remained unchanged from year to year and was supposed to represent the price at which deals were available at the point of export, and so excluded major costs such as freight and import duty. Clearly, with Norwegian deals on sale in the Firth of Forth in 1765 at £7 per great hundred the Official Price did not accurately reflect the true value of deal imports. However, in 1800 as part of the government's attempts to increase revenue from import duties 'Declared Values' were provided for each item; these represented the total cost of each item to importing merchants, this included not only the prime cost in Norway or Russia, but also freight and duty - both of which had increased markedly during the 1790's.
The differences in the size and quality of Ordinary deals from Norway Sweden and Russia are indicated by the substantial differences in their 'Declared Value'; while Ordinary deals from Russia averaged £26.9/4d per great hundred those from Norway cost only £10.11/8d and from Sweden only £10.19/5d. For battens, Russia averaged £13.5/7d as opposed to £7.6/1d from Sweden and £9.9/3d from Norway.

Within both imports of timber from Norway and the Scottish market as a whole the latter part of the eighteenth century saw the rapid growth and rise to dominance of a new form of timber import, the squared balk. According to the Scottish Customs regulations balks were classified by diameter; over 12 in. square was known as Fir timber and paid duty per load of 50 cubic feet. Balks of between 8 and 12 inches in diameter were called middle balks and those of 6 to 8 inches were know as small balks; both middle and small balks paid duty per great hundred. Table 23 shows the level of Scotland's Fir timber imports from all sources between 1755 and 1800, while Table 25 shows imports of Fir timber, middle and small balks from Norway.

In 1755 the Inspector-General's accounts suggest that Norwegian Fir timber met Scotland's limited needs. However, Norway's position as part of the joint kingdom of Denmark/Norway, and the activities of Danish captains in shipping Baltic timber as 'Copenhagen fir' to avoid the British navigation laws, meant that the Inspector-General's figures exaggerated the importance of Norwegian supplies. [87]

Between 1755 and 1787 Scottish demand for Fir timber rose dramatically from 1,957 loads to 25,936 loads. However, this demand was met almost exclusively by the Prussian port of Memel; Norwegian imports had fallen as low as 495 loads in 1778 and in 1787 totalled only 1,687 loads. In 1773 James Inglis jnr. noted:

> Memel is best as it is neither the finest or worst in quality but almost as cheap as Norway but much better quality. [88]

From 1787 imports of Fir timber from Norway rose rapidly to a peak of 7,667 loads in 1800. This was due to two factors: the relative balance between deals and Fir timber changed due to the duties levied on each item under Pitt's Consolidation Act of 1787, the increased duties weighed more heavily on imported deals and encouraged the import of Fir timber which was then sawn to specification. Moreover, due to its shorter length Norwegian Fir timber was more easily manufactured into deals. Also, from 1792 the French Revolutionary Wars and the danger to shipping led to a preference for the shorter journey to and from Norway in comparison to the long trip up the Baltic. While Norwegian supplies never rivalled Prussian they did increase markedly, as shown in the following graph.

GRAPH 1

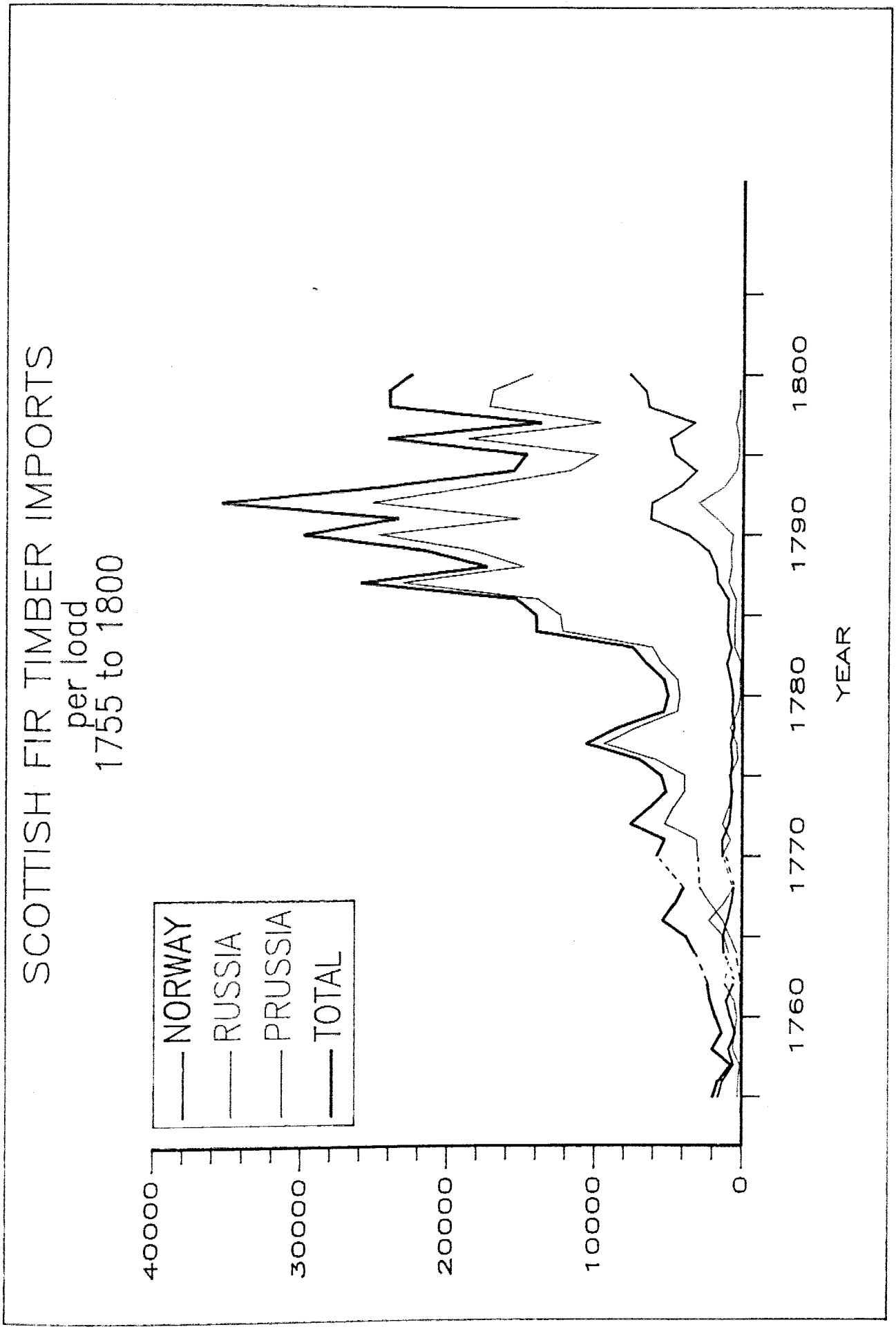

SCOTTISH FIR TIMBER IMPORTS
per load
1755 to 1800
NORWAY
RUSSIA
PRUSSIA
TOTAL
40000
30000
20000
10000
0
1760
1770
1780
1790
1800
YEAR

Table 25 shows imports of Fir timber from Norway alongside figures for middle and small balks. Unfortunately, the import duty on middle and small balks was levied by piece, per great hundred, regardless of timber content. This makes comparison with Fir timber imports difficult as this was measured by the load of 50 cubic feet. Nevertheless, imports of middle and small balks were significant; one way in which Scottish merchants avoided import duties was to have Fir timber imports from Norway reclassified as middle or small balks, a regular occurrence in the Scottish Port books. In 1800 557 great hundred middle balks were given a 'Declared Value' of £9,511 that is £17.11d. This suggests that each great hundred of middle balks was equivalent in cost to $4\frac{1}{2}$ loads of Norwegian Fir timber.

Tables 3,4 9 and 10 show the level and distribution of Norwegian deals and Fir timber (and rival sources) in each of Scotland's customs precincts during 1755 and 1765. In both years Norwegian deal imports had a far wider distribution around Scotland's precincts than either Swedish or Russian supplies. Although Leith was the leading importer of deals the precinct's total was met by various sources other than Norway alone, Sweden in 1755 and Russia also in 1765. In both 1755 and 1765 the leading precinct for Norwegian deal imports was actually Greenock on the west coast. In 1765 Greenock was also the leading importer of Fir timber, having surpassed Leith just as Poland and Russia had overtaken Norway as suppliers of that form of timber.[89]

While Tables 3, 4 9 and 10 indicate the level of imports of Norwegian deals and Fir timber into specific Scottish customs precincts and reflect the market demand for timber in each region, less certainty exists as to the specific source of these items within Norway. Certainly, some Scottish ports forged particularly close links with their Norwegian counterparts, e.g. Greenock with the west coast ports of Trondheim,Molde and Kristiansund, or Orkney with Bergen. However, as we have seen, the limitations of the Scottish and Norwegian Port books make it difficult to be precise about ports of departure in Norway, and throw serious doubts on the accuracy of Tables 16 to 18. Evidence provided in the letter books of James Inglis jnr. and Hunter and Smith during the 1770's indicate just how arbitrary and haphazard the final destination of a Norwegian vessel could be; for example, in 1774 Inglis took over the sale of a timber cargo for John Weston of Dysart: Watson was heavily in debt and expected the ship to be seized by his creditors. The vessel, the Peggy of Christiansand was diverted to Leith, but its lack of Fir timber made it difficult to sell:

> Today I applied to sundry of the retail merchants in the timber trade and showed them the apportment but none of them will come to terms-neither do I believe it will come to any advantage in Leith: there is too many deals and too much variety of articles. If there had been more timber the cargo would have sold better here.[90]

Although some Scottish ports benefited from a passing trade with Norwegian vessels touting for sales one incident involving Hunter and Smith indicates the limits of this particular method; in 1777 James Lindsay and Co. of Glasgow attempted to order a cargo of Norwegian timber, if a vessel was looking for a sale. The cargo would be bought at Sealoch and carried on the Forth - Clyde Canal. However, Hunter and Smith informed them:

> we observe you want a Norway cargo, there are some expected up but without buying they won't go to any port upon chance, you must therefore say what you'll give for logs and deals and we will endeavour to secure a cargo for you deliverable at Sealoch.[91]

Chance played its part however, and the next week Hunter and Smith were able to secure a cargo of Norwegian timber for Lindsay and Co. The master actually had a deal with a Berwick merchant but his vessel was blown off course by contrary winds. The cargo was sold at Sealoch 'at the stump', for 8d per cubic foot of Fir timber and £3.17/6d per great hundred deals.[92] 'At the stump' or 'at the mast' meant the purchaser was liable for all import duties.

Hunter and Smith financed their irregular and speculative trade in Baltic goods from their regular income from a retail business in wines and spirits; indeed, it was the coincidence of the seizure by privateers of one of their vessels bringing spirits from Gibraltar and two other vessels bringing flax, hemp iron and deals from St Petersburg that finally caused their partnership to dissolve.[93]

The legitimate timber trade with Norway had a long history of acting as a cover for smuggled wines and spirits, and it was to this supply route that Hunter and Smith turned after the outbreak of war against Spain in June 1779.

In August 1779 Hunter and Smith wrote to Alexander Wallace, a Scottish merchant in Bergen:

> our trade with Spain being interupted on account of the present rupture with that power we find it necessary to carry it on through a neutral channel.[94]

The letter was actually addressed to 'Bergen, the capital of Norway in the dominions of the King of Denmark. The real capital was Christiania (Oslo), but the mistake indicates the dominant position of Bergen as Norway's largest urban centre.

Chance continued to play its part in shipping between Norway and Scotland; in August 1780 Hunter and Smith noted:

> luck has cast up a Dane who offers to bring home a cargo-it may open a beneficial correspondence for future negotiations with Alex Wallace. [95]

The Wallace family, originally from Banff, was involved in trade between Norway and Scotland as far back as 1721 when James Wallace was smuggling wine and spirits to Leith. Both James and his son Alexander became burgesses in Bergen, and in 1744 Alexander, Norwegian born but educated in Scotland, was appointed as British consul, the first in Scandanavia.[96]

Alexander Wallace provided invaluable assistance to Britain and British shipping during wartime; he gave naval intelligence on privateers to the Admiralty and aided British warships operating off the Norwegian coast. He also helped the stranded crews of British vessels taken as prizes and organised the release of both ships and men. [97]

Wallace also provided the British government with general trade reports and details about smuggling: in 1757 he wrote about shipments of East India goods from Copenhagen to Norway from where they smuggled to England. Amusingly, the shepherd was a wolf: one of Wallace's vessels was seized in England for smuggling. Again in 1765 the Northern Secretary of State, Sandwich, ordered Wallace to investigate the extent of brandy smuggling via Norway. Wallace, himself a leading smuggler, reassured London that

after exhaustive enquiries very little could be traced![98]
Detailed evidence of Wallace's involvement in smuggling brandy, as well as the legitimate timber trade, is provided in his correspondence with various members of the Balfour family in Orkney; in 1787 Wallace informed Thomas Balfour sen. :

> we should with pleasure have shipped with him all what was to be got here of the sundrys ordered but on asking him there anent he would not take anything on board.

In fact, John Sutherland, captain of the vessel concerned, the Skirmish, had been ordered by Captain Thomas Balfour (Thomas' nephew)

> I charge you in the strictest manner not to permit one anker of spirits or one pound of tea or any other contraband article.[99]

However, the following year Wallace wrote:

> he (Captain Sutherland) has got onboard as much of each kind of the sundry articles as could conveniently be gott.[100]

The wars which created such a demand for Wallace's more legitimate services also had severe repercussions on the structure of the Scottish-Norwegian timber trade; Table 26 indicates the rapid shift to neutral Norwegian owned vessels between 1756 and 1763, 1776 and 1783 and from 1792 onwards. Alterations within nationality were important within the balance of trade between Scotland and Norway as freight charges accounted for a substantial proportion of the final cost of timber. The hazards of war led to an increase in the 'commission trade' in which Norwegian merchants undertook most of the work involved in selecting and loading a timber cargo and also arranged its shipment. The Scottish merchant involved simply sent over his specifications, allowed the Norwegians to draw payment and paid the import duties. For example, during 1781 William and John Cadell of Cockenzie had timber cargoes organised by Elizabeth Winter of Oster-risor and Karen Anker of Christiania (both women were the widows of major Norwegian merchants). Both Anker and Winter provided the Cadells with detailed price-lists, showing the prime cost of each type and dimension

of timber, the cost of loading and port charges in Norway and also the cost of freight. The price lists illustrate the great variety in the quality of timber provided by individual ports and the superior quality of items from Norway's east coast ports; 12ft redwood deals, 9in. wide and 1¼in. thick cost 16 Rixdollars in Oster-risor but 26 Rixdollars in Christiania (£3.4/- - and £5.4/- respectively).[101] Freight was charged at 34/- per standard great hundred deals, (12ft x 9in.x 1¼in or 1031/8th cubic feet). Obviously, freight was more important in relation to cheaper,poorer quality cuts; it added half as much again to the prime cost of redwood deals from Oster-risor, but only one-third to the prime cost in Christiania. When they received the cargo of the Salvator, as listed on p.30 the Cadell's worked out the First Cost of the cargo, that is the amount they would have to charge to cover all their outlay. The various costs of the cargo were noted as follows:

Prime cost in Norway	£260.15
Freight and port charges	118. 5
Caplacking	6. 6
Import duty	30.10
officers	2. 5
	£418. 1

To meet these costs, exclusive of any profit margin, the Cadells worked out the following prices:

6½ g.h.	3in best deals	@ £16.10	£107. 5
12 g.h.	1¼ " "	@ 10.10	126.
2½ "	2½in battens	@ 14.	35
6 "	1¼in second deals	@ 8.10	51
6 "	1¼in best battens	@ 7.10	45
2 "	3in second deals	@ 13.10	27
3 "	half deals	@ 7.	21
2¼ "	ends	@ 3.10	7 16 [102]
			£420. 1

Although the Prime cost of timber in Norway accounted for the largest proportion of the retail cost of timber in Scotland it was secondary in importance to the cost of shipping known as the freight rate. Fluctuations in the retail price of timber were generally the result of changes in the freight rate. For example, the Riksarkivet in Oslo holds two account books belonging to the London-based timber firm of Norman and Co.[103] These books contain full details of the cargo costs for several hundred shipments of timber to London between 1772 and 1785, including a breakdown of the various costs invoiced in shipments from the ports of eastern Norway including Christiania, Fredrickstad and Oster-risor, and also Baltic ports such as St Petersburg,Narva and Memel. These costs included the Prime cost in the port of departure, the freight rate, import duties, and especially important the retail price received by Norman and Co. when they sold the timber in London. No similar year-by-year series of prices is available for Scotland. However, from a comparison with surviving Scottish sources such as Inglis and Cadell it is clear that the figures from Norman and Co. provide a useful proxy- the one notable difference is found in freight rates which were usually a few shillings lower to London, reflecting the English capital's importance within the shipping market.

Price breakdown of 'best' redwood deals, 12' x 9" x 2½" per great hundred Christiania to London.

	Prime cost	Freight rate	Import duty	Retail price
1772	£10.8/-	46/-	£1.10/-	£16.10/-
1773	"	40/-	"	£16.10/-
1774	"	36/-	"	£16.
1775	"	40/-	"	£16.
1776	"	52/-	"	£17.
1777	£9.16/-	56/-	"	£16.10/-
1778	"	56/-	"	£16.
1779	£10.8/-	56/-	"	£16.10/-
1780	"	56/-	"	£17.10/-
1781	-	60-76/-	"	£17.10/- to £18.10/-
1782	£10.8/-	76-100/-	"	£19. to £21.
1783	"	50/-	"	£17
1784	"	36/-	"	£16.10/-
1785	"	38/-	"	£17

As a general example for the Norwegian timber trade these figures are somewhat deceptive, in particular they exaggerate the importance of the prime cost in Norway as a proportion of the retail cost. In 1772 the prime cost of Norman's best $2\frac{1}{2}$"redwood deals accounted for 63 per cent of the retail cost. However, these deals are the most expensive available; for a mixed cargo of various qualities and sizes in 1772 prime cut accounted for 49 per cent of retail costs. Obviously in the case of Scottish imports from Norway, which were usually poorer quality, prime cost would have been lower still. Nevertheless, Norwegian prime cost would still have accounted for more of the retail cost of imports than prime cost in St.Petersburg and Memel; in 1772 prime cost accounted for 38 per cent and 31 per cent respectively for cargoes of timber from these Baltic ports.

Throughout the period 1772 to 1785 the prime cost of $2\frac{1}{2}$" deals remained constant. The fall in price between 1777 and 1778 marks a shift by Norman and Co. to the port of Fredrickstad where the prime cost was a little lower; this shift was made in an attempt to offset rising prices due to increases in freight rates caused by the outbreak of the American war. In 1782 no figure for prime cost is available; in that year all the cargoes purchased by Norman and Co. were sent 'on consignment' by neutral Norwegian merchants because of the increased danger from privateers.

The material drawn from the accounts of Norman and Co. shows that fluctuations in retail prices were directly related to the changing cost of shipping. This point was also made by Henry Warburton, M.P., in his evidence to the Select Committee on Timber Duties in 1835. Warburton had been a wholesale dealer in timber from 1808 to 1831 and he was able to provide information from his firms books for the period 1757-1808. Warburton told the Committee:

> the principal cause in the variation in price that is usually observed to follow the breaking out of a war, does not, in most instances, arise from an alteration in the price of the article in the foreign market, but from changes in the rate of freight, and the obstructions which mar occasions to mercantile navigation... In 1774 the freight for the Norway standard of 120 pieces, 11ft x 9in x $1\frac{1}{4}$in, from Christiania to London was 21s. In 1780 it rose to 30s. in

> 1781 to 38s and in 1782, to 50s, the price of deals at Christiania during that time remained stationary, the fluctuations of price in the London market keeping pace with those of the freight. In 1783, the freight fell to 20s, at which level it remained almost steadily until the breaking out of the war in 1793. [104]

Increases in freight rates during wartime probably enhanced the relative competitiveness of Norwegian timber supplies, because increased freight rates fell more heavily on the distant Baltic ports where freight already accounted for a higher proportion of total costs. For example, in 1772 the retail cost in London of 50 cubic feet of Memel Fir timber was 38/- and freight accounted for 52 per cent of this cost, but by late 1781 at the height of the American war the same timber cost 70/- with freight accounting for 70 per cent of the cost.[105]

Unfortunately, for the Norwegians freight rates declined in importance during the latter part of the eighteenth century; the Finnish historian, Sven-Erik Astrom has used Warburton's statistics to show that between 1760 and 1810 freight costs declined substantially relative to the cost of timber. Both freight rates and retail prices actually increased over the half century, but freight rates did not rise as quickly as retail prices. Astrom believes that the importance of freight was halved, thus making more distant sources of timber more competitive. [106]

In 1791 the cost of freight from Bergen to Orkney was 20/- per great hundred deals. Normally, Norwegian freight rates were set per timber last, a cubic measure roughly equal to the Christiania standard of 120 11ftx9in x 1¼in. deals (103 1/8 cubic feet). In Bergen the agreed measure was a little larger, using the most regular deal size sold there, 8ft x 9in x 2in deals (129 cubic feet). However, as the accounts for the sloop Mary of Kirkwall show, working out freight costs was no easy matter. Unlike shipments from Gothenburg or Memel which were dominated by one form of timber Norway supplied a variety of timber items. Moreover, trips between Orkney and Norway were often undertaken by a combination of several merchants. In the Mary's account each timber item is given

as a proportion of 8ft x 9in x 2in deals, so 12 barrels of tar are equal to 6 dozen deals, 10 dozen harrowbills are equal to $2\frac{1}{2}$ dozen deals; a boat in pieces is equal to $1\frac{1}{2}$ dozen deals and 10 dozen 12ftx 3in deals are equal to 16 dozen and 8 deals. Each merchant's goods are listed in proportion to 8ft x 2in deals and their freight cost given at 20/- per great hundred.[107]

By 1775 imports of Fir timber from Norway at 685 loads were of little significance within a total import figure of 5,668 loads; nor did Norwegian imports make any impact on particular Scottish precincts; Leith was the major destination for imports, accounting for 146 loads, but this provided only 17 per cent of the precinct's needs. Although Scotland's demand for Fir timber expanded rapidly, with a figure of 13,998 loads in 1785, Norwegian supplies remained unimportant at 902 loads. By contrast, in 1775 Norway was still the major supplier of ordinary deals, 1,168 great hundred out of a total of 2,130 great hundreds. Norwegian supplies were also the most widely distributed; arriving in 22 out of Scotland's 25 precincts. Swedish deals are recorded in only 17 precincts and Russian in only 14.[108] Although Leith precinct recorded the largest import figure for deals in 1775, 296 great hundred, both Swedish and Russian supplies were more important. The leading precincts for Norwegian deal imports were Aberdeen and west coast precincts of Greenock and Irvine. By 1785 the distribution of deal imports around Scotland had changed dramatically; the opening of the Forth-Clyde canal (in use from 1777), led to the development of Bo'ness as an entrepot, and the concomitant decline of the imports into west coast precincts. Bo'ness was now the leading importer of both Norwegian deals, and deals in total and was followed in both cases by Leith: Bo'ness drew in 243 great hundred deals from Norway and 536 great hundred in all, while Norway supplied 294 great hundreds out of the Leith precinct's total of 409 great hundred. However, if we turn to Table 18 which shows the specific Norwegian ports which supplied the Scottish precincts, it is clear that there was a significant difference between the Norwegian trade at the Bo'ness and Leith precincts; half of the 28 Norwegian vessels arriving in Bo'ness arrived from east coast ports - 9 from Christiania (Oslo) alone. These ports provided Norway's top quality deals. By contrast only 4 of Leith's 23 entries from Norway arrived from east coast ports. This situation parallels the major differences which existed within the import of Russian deals into these two precincts.

Deal imports from Norway into the Leith precinct in 1785 arrived from eight different ports, but were dominated by Oster-risor, Arendal and Christiania with totals of 56,40 and 54 great hundreds respectively. In contrast, Bo'ness precinct received vessels from nine Norwegian ports, but Christiania alone accounted for 133 of the precinct's 243 great hundred Norwegian deal imports. Bo'ness acted as a west coast precinct by proxy, the only other major importer of Christiania deals was Greenock itself where three ships brought in 111 great hundred deals - cargoes far larger than the Scottish average from Norway of 8 great hundreds per vessel.

Christiansand continued as the major supplier of deals to Scotland's east coast precincts; Anstruther, Dundee, Montrose and Aberdeen received 56,80, 76 and 92 great hundred deals respectively. Bergen maintained its near monopoly on Scotland's northern precincts of Thurso, Orkney, Shetland and Stornoway, where a total of 15 vessels supplied 87 great hundred deals. In the west coast precincts of Greenock Port Glasgow and Irvine the Norwegian east coast port of Langesund played a major role, supplying 8 vessels and 84 great hundred deals.

Proximity was one reason for the continuation of the Scottish-Norwegian timber trade during the latter part of the eighteenth century. Bergen for example, was only 404 nautical miles from Leith compared to Memel in the Baltic which was 932 nautical miles away. During 1785 the 28 vessels which sailed between Bergen and the Scottish east coast averaged 14 days for the journey, by contrast in 1793 the Breadalbane averaged 24 days sailing from Memel to Perth - at the height of the season.[109] Nevertheless, even the shortest sea journey was fraught with danger. For example, in 1783 the Lovely Helen, a 40 ton vessel from Kincardine, captain William Primrose, carried a cargo of coal from Kirkaldy to Bergen and returned to St Andrews under a freight agreement with merchant Andrew Braid for a loading of deals and brandy. The Lovely Helen actually took 5 months to complete her voyage; prevailing winds prevented the vessel's departure from the Firth of Forth for several weeks, and further delays occured in Bergen due to winter storms and ice in the fiords. Moreover, the ship's log records the fate of one crewman:

> William Drysdale departed this life by going forward to loose the storm jib, and he being helpless with the cold lost hold and was drowned without any possibility of saving him.[110]

The following table shows when and where each Norwegian cargo arrived in Scotland, as recorded in the Scottish port books for 1785:

Timber cargoes from Norway 1785.

	Total	JAN	FEB	MAR	APR	MAY	JNE	JLY	AUG	SEPT	OCT	NOV	DEC
Aberdeen	29					2	14	4	2	5			2
Alloa	5					1			1	1			2
Anstruther	11		1			1		2	3	2			2
Ayr	1							1					
Bo'ness	28			1	3	3	3	2	4	4	3		5
Campbeltown	1									1			
Dunbar	8				1	1	1	1	1	1	2		
Dundee	22	1	2	1			3	2	7	3	1	1	1
Greenock	6					3	1	1				1	
Irvine	5						3			1		1	
Kirkcaldy	8					1	2		2	1		1	1
Leith	23			2	2	1	7	1	6	2		1	1
Montrose	15					5	1	2	5	2			
Orkney	3						1	1	1				
Perth	5						3		1	1			
Port Glasgow	5					1		2	2				
Prestonpans	9					1	2	2	2		1		1
Port Patrick	2					1		1					
Stranraer	2									1	1		
Shetland	4					2	1		1				
Stornoway	1							1					
Wigtown	1					1							
Thurso	8					1	1	2	2	1			1
Total	202	1	1		7	25	43	25	40	36	8	5	16

Scotland's shipping season for Norwegian timber was concentrated within the months from May to September, with a smaller peak in December. This pattern is broadly similar to the shipping season for timber imports from Memel and the Baltic - with one notable exception. Imports from Memel began to arrive in Scotland in June; this meant that a substantial number of vessels from Norway, 25 in 1785, arrived prior to the arrival of the Baltic fleet, and so met the early demand for timber.

The seasonal shipping pattern for imports from Norway was dependent upon several factors; demand for timber in Scotland, the availability of shipping and weather conditions. In 1713 an English merchant based in Arendal James Bowman detailed some of the problems caused by weather in his trade; apart from difficulties with storms gales and prevailing winds Bowman noted that in Norway Arendal was the only good harbour ice-free in February, there was a severe shortage of deals that year because ice had prevented sawing, and a lack of snow meant there was little water to float logs or run the mills.[111]

The information in the following list is also drawn form the Scottish port books for 1785; it provides a geographical breakdown of Scotland's deal imports from Norway. [112]

Port	No. of vessels	Great hundred deals.
Trondheim	11	63
Molde	6	83
Bergen	32	215
Flekkefiord	4	37
Mandal	14	111
Christiansand	63	398
Arendal	16	98
Oster-risor	14	90
Langesund	13	91
Porsgrunn	2	7
Skien	1	2
Brevik	3	4
Drammen	2	6
Christiania	16	313
Moss	2	14
Fredrickstad	3	41

In 1785 the west, south and east coast ports of Norway were sending 49,111 and 42 vessels respectively to Scotland with 361, 734 and 478 great hundred deals. By this date the once dominant west coast ports such as Bergen and Trondheim had clearly been eclipsed, providing only 24 per cent of vessels and 23 per cent of deals. Although the Agder ports of the south coast remained Scotland's main deal supplier, with 55 per cent of vessels and 47 per cent of deals, it seems likely that due to their relative quality the 30 per cent of Norwegian deals imported from Christiania and other east coast ports had matched Agder supplies by value if not bulk.

The letter-books of Bernt Anker, a Norwegian timber merchant based in Christiania, provide detailed information on Scotland's expanding trade with eastern Norway during the 1780's. Anker's letters provide graphic details on his own difficulties in meeting demand; in 1786 he was unable to supply his 'old and regular customers', Christie and Corse of Paisley due to 'prodigious snow and rebellion among timber drivers'. In 1787 battens were in short supply due to demand for thicker deals, and in 1790 there were 'no deals in Norway or Baltic due to lack of water'. Ice and snow meant there was no water for the saw-mills.[113]

On 23rd June 1787 Anker sent a detailed analysis of the trade to Andrew Braid of St.Andrews:

> Persuant to your order have loaded Capt Moore's ship though there was a great scarcity of deals on account of the great demand and absolutely no deals at this place. The prices are 25% higher than last year, but I've a constant price for all customers and therefore not charged more than last year or old prices. Tis uncommon here to ship all best deals as in this cargo as the seconds thus lay on hand, as less demanded than the best must be sold by them. You had ordered all best red deals, which is never heard of here before to Scotland where only 3 inch thick seconds, and single battens are ordered. Yet have strictly complied with your order and sent you some few 3 inch white best for a sample. The deals which look black are floated down the river 100 miles, but are looked upon as the finest hearty wood in the country and much demanded at London and everywhere in England.
> The timber(Fir timber) was not to be had here. This being not the port for timber, none being exported from hence, but if you send your ship to me at Fredrickstad you may get any quantity of the finest and largest timber and all sorts of deals and battens too as good as here and cheaper, all deals being sawn of the same identical upland timber as here. Therefore I should advise you to send Capt Moore hither in future and depend on my servicing you to your entire satisfaction. The capt was not to be prevailed upon to take the orders 6 hogshead of Claret, not even one of it. This must be left for next trip. I've some excellent Madeira wine here at £40 a pipe if you choose any.[114]

Anker's letter to Braid illustrates several facets of Scottish trade with the ports of eastern Norway; for example, like the Norwegian timber trade as a whole Anker was experiencing difficulty in meeting demand, particularly for top quality 'upland' timber; Anker, in common with other Norwegian merchants such as Norman and Co. of Christiania, maintained a constant price for his goods over several years by covering fluctuations in exchange rates and prime cost himself- from 1772 to 1785 Norman and Co. charged £10.8/- for redwood best 12'x 3" deals, per great hundred (major changes in the retail cost in Britain were solely due to freight rates which varied from 18/- in 1774 and 1784 to 50/- in 1782, per standard great hundred).[115]

As Anker's letter suggests, costs could be offset by a profitable sideline in smuggled goods, The question of the make-up of timber cargoes also arises; while Norwegian merchants wished to send mixed cargoes of timber of varying length thickness and quality Scottish buyers generally sought specific size and quality. Although Braid wanted best redwood deals, as Anker noted, most Scots purchased 3" thick whitewood seconds. These were not the most expensive deals available in Christiania, but at 32 Rixdollars per great hundred they were expensive within the context of Scotland's purchases from other Norwegian ports. By contrast, the standard size of deal bought by Scots from Bergen was the 8ft x 9in x 2in - this sold at 11½ Rixdollars per great hundred.[116]

Anker traded with several Scottish merchants, mostly in either Leith or the west coast ports; these included, William Moore, George Sinclair James Mitchell and John Glen, all of Leith; Archibald and James Robertson, James Wylie, Hugh Moody and Boyle and Scott, all of Greenock; James Walkinshaw and Christie and Corse of Paisley, and Ralph Foster and Clunie and Home of Berwick. From 1787 these Scottish merchants became more settled in their demand for 3" whitewood seconds. As Pitt's Consolidation Act pushed up import duties on deals Scottish merchants demanded as high a timber content as possible. In July 1788 both James Wylie and Christie and Corse were informed, 'I cannot give him 3in white seconds alone, you must take in proportion' and, 'I don't like to sell white without yellow and in proportion of $1\frac{1}{4}$,2, and $2\frac{1}{2}$in. but for the duties importers wish only 3in'. [117]

Anker was graphic in his condemnation of Pitt's actions:

> 'the new enormous duty on deals your prime minister is scheming will ruin that useful branch of business. In human society wood is as necessary as bread.[118]

The timber trade from Christiania was firmly in the grip of Norwegians, both the organisation (the commission trade) and the shipment of cargoes. In 1787 Christie and Corse sent over their own vessel in their haste to beat the new duties. However, Anker told them firmly that they should never send him a vessel 'at random'. Shipping was clearly his province. Anker charged freight to the east coast of Scotland at the same rate as to English east coast ports, and generally a couple of shillings higher than his rate to London; freight for the Scots fluctuated between 19/- in 1785 to 55/- in 1800.[119]

Unfortunately, the growing importance of Scotland's timber trade with eastern Norway within the Scottish-Norwegian timber trade as a whole was not recognised by the Norwegian port books. The following list shows the number of vessels recorded in the 1785 Scottish port books as arriving with timber from Norway, and those vessels recorded in the Norwegian port books as departing for Scotland. It also lists the number of vessels which actually went to Scotland but were recorded in the Norwegian sources as sailing for elsewhere.[120]

	Scottish port books	Norwegian port books	Traceable
Trondheim	11	7	4
Molde	6	9	
Kristiansund	0	2	
Bergen	32	47	
Stavanger	0	1	
Flekkefiord	4	5	
Mandal	14	7	
Christiansand	63	41	24
Arendal	16	8	5
Oster-risor	14	5	10
Langesund	13	0	11
Brevik	3	0	3
Skien	1	0	1
Porsgrunn	2	0	1
Drammen	2	0	2
Christiania	16	1	13
Moss	2	0	2
Fredrickstad	3	2	1

In common with their records for 1755 the Norwegian port books for 1785 seriously under-estimate departures to Scotland from ports in southern and eastern Norway, while they exaggerate (with the exception of Trondheim) departures from ports in western Norway. However, as the list shows the vast majority of vessels can be traced; they are generally listed in the Norwegian port books as leaving for either England or France. For example, in the Moss port books the Janet and Barbara of Leven, (which arrived in Kirkcaldy on 18th June) was recorded as sailing on the 4th June for 'Lith in England'! By contrast, the overemphasis on Scotland as a destination for departures from ports in western Norway reflects the continuing importance of Scottish merchants and vessels in that area. In 1785 250 vessels sailed abroad from Trondheim, of these 57 were Scottish- 27 of which carried timber to Ireland. Of the 153 departures from Kristiansund 23 vessels were Scottish. Scottish merchants operating in western Norway at this time included William Allan in Molde; William Gordon, James Milne and John Ramsay in Kristiansund and William Farquhar and Alex Wallace in Bergen.

Scotland's traditional trade with western Norway included the exchange of primary goods, Scottish grain for Norwegian timber, and to some extent, this trade continued. For example, the masters of several Scottish vessels arriving in Bergen actually told customs officials they would not unload their grain unless timber was available in exchange.[121] The letter books of Herman Hoe, a Danish merchant based in Trondheim, provide ample evidence on Scottish grain sales. Hoe bought grain from several Scottish merchants, mainly from north-east Scotland; men such as James Argo and John MacRay of Peterhead; George Mackay, James Lyall, James Bisset, James Cowie and Gardiner and Paterson of Montrose and David Scott of Johnshaven. However, few of the vessels taking grain to Trondheim returned to Scotland with timber, rather, Hoe provided cargoes of timber tar or fish for Ireland, England, the Baltic, Holland and Spain.[122]

While Scottish skippers were taking advantage of the increasingly diverse range of options open to them in Norwegian ports, timber imports from

Norway were becoming concentrated within particular Scottish precincts during the last decade of the eighteenth century.

The Revolutionary Wars against France did not have a detrimental effect on the level of the Scottish-Norwegian timber trade; although Scotland's total deal and Fir timber imports declined from the high point of 1792 the remainder of the decade saw Norwegian imports, probably due to their close proximity to Scotland, gain at the expense of their most distant rivals. By 1799 imports of Norwegian deals at 2,300 great hundred were higher than at any point over the half century. Moreover, Fir timber imports, of negligible importance during the 1780's had risen to a point where in 1800 at 7,667 loads they reached 53 per cent of the level of imports from Prussia and accounted for 34 per cent of Scotland's total Fir timber imports.[123]

Nevertheless, the last decade of the eighteenth century saw clear changes taking place in the structure of the Scottish-Norwegian timber trade,in particular its growing concentration within the Bo'ness customs precinct. In 1755 Scottish deal imports were widely distributed amongst different precincts; the leading importer of Norwegian deals, Greenock, accounted for only 27 per cent of the total, and together the three leading precincts took 50 per cent of Norwegian deal imports. By 1795 Bo'ness alone accounted for 50 per cent of Norwegian deals. Similarly, in 1785 Bo'ness, at 31 per cent, was the leading destination for Norwegian battens; by 1795 that precin alone took 71 per cent.

The increasing concentration of Norwegian imports on Bo'ness was probably the result of the financial strictures of the war years; credit was in short supply and smaller importers would have suffered most, rather than the larger firms based in Christiania and Bo'ness, just as Hunter and Smith suffered financial collapse on 1782. However, the concentration of both Norwegian deals and Scottish timber imports as a whole within particular customs precincts during the 1790's may also have been due to government regulations. The growing danger from privateers led the government to increase its control over British shipping, firstly by making skippers report their movements by filling out importation bonds, and then by establishing compulsory convoys.[124] Fines of £100.

were imposed for failing to report departures and of £1,000 for not sailing in convoy. However, the convoys only sailed from central points, such as the Firth of Forth, a system which discriminated against smaller more distant ports. As one Campbeltown skipper pointed out:

> It is well known there was not a convoy from this port or the neighbourhood to Norway since the present law began. In consequence, I was under the necessity of joining the nearest convoy which was then at the Orkneys.[125]

Moreover, in 1787 the British government introduced the Consolidation Act and increased import duties from 30/- per great hundred deals to 53/-. Several other increases were introduced before the end of the century to meet the rising cost of convoy protection during the French Revolutionary War; by 1797 duty had increased to 87/6d per great hundred deals.[126] Duty was levied on the great hundred of deals measuring up to 3¼in. in thickness, from 7 to 11in. in width and from 8 to 20ft in length. As the government increased the level of duty, so merchants attempted to lessen its effect by importing larger sizes of deals within the perameters allowed. However, in the Norwegian trade the exhaustion of forest stands meant this was a limited option, larger lengths of timber were simply not available. The Scottish figures for 1795 may imply that merchants there increasingly turned to more expensive high quality deals, because import duty accounted for a smaller porportion of the retail cost.

The 'Declared values'were included in the Inspector-General's report for 1800 as the government attempted to increase customs revenue. They provide an excellent summary of the position of Norwegian imports within the Scottish timber trade. The total 'Declared value' of Scotland's timber imports in 1800 was £167,885 of which Norwegian supplies cost only £64,792. or 38.6 per cent. Imports of Ordinary deals from all sources totalled only £40,492 or 24 per cent of the total. The leading form of softwood timber imported into Scotland was Fir timber; at £89,157 Fir timber imports represented 53 per cent of the cost of all timber imports. This development was also reflected within the Scottish-Norwegian timber trade; at £18,803 deal imports from Norway accounted

for only 29 per cent of the total. By contrast, in 1800 the 7,667 loads of Fir timber imported from Norway with a 'Declared price' of £3.15/- per load and a 'Declared value' of £28,469 accounted for 44 per cent of the cost of Norwegian timber imports; 556 great hundred of middle balks had a 'Declared value' of £9,511 or 15 per cent of the total; obviously uncut timber dominated imports from Norway as clearly as they dominated the Scottish market as a whole.[126]

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CHAPTER TWO

SCOTLAND'S TIMBER TRADE WITH SWEDEN

Scottish commercial contact with Sweden does not have the long-term tradition of trade links from Norway. James Dow has shown that trade with Sweden only dates back to the early decades of the sixteenth century and became firmly established during the course of the sixteenth century.[1] Scottish trade was centred on the Swedish west coast ports of Lodose and Nylose, the precursors of Gothenburg, and cargoes were mainly Osmund iron and timber. Trade contact with Sweden's capital Stockholm was intermitent and of little consequence; between 1562 and 1583 only seven vessels sailed from Scotland to Stockholm.[2]

Most of the timber imported from Nylose during the sixteenth century was expensive hardwood such as oak; in 1536 the building accounts for Holyrood and Falkland record the arrival of 'aiken tymmer of Lowdis (i.e. Lodose) in Swadin fra Jane Benistoun (Jan Bengtsson) and Yowane Piersoun (Joran Persson)' [3] Softwood timber may also have arrived in the form of 'sweden bords', several purchases of which are recorded in the Master of Works accounts for building at Holyrood Palace in 1529.[4] However, according to James Dow Swedish timber was still greatly outweighed by imports from Norway.[5]

Scotland's growing prosperity during the early decades of the seventeenth century was reflected in the expansion of trade with Sweden. However, the most dynamic element in Scoto-Swedish commercial relations was the iron-tra with Stockholm. Timber imports came almost entirely from Nylose, but oak timber formed the greatest part of the total import and deals were relative insignificant.[6]

General commercial links between Scotland and western Sweden were boosted with the foundation of Gothenburg in 1621. In 1624 two out of twelve seats on the Town Council were reserved for Scots. The new town not only 'inherited' several Scottish merchants from Nylose, such as Thomas Stewart and Hans Carnegie, but also received an influx of others, keen to take advantage of the privileges granted to burghers.[7] During the seventeenth and eighteenth centuries the attitude of the Swedish crown to the foreign merchant community in Gothenburg provides a useful indication of the state of the Swedish economy; privileges were withdrawn during the slumps of the 1690's and 1770's, but settlement was encouraged during the period

from 1700 to 1721 and during the 1740's.[8]

In the decades after the foundation of Gothenburg Scottish merchants played an important part in developing sawmilling and deal production at Trollhattan and Lilla Edet on the Gota river; in 1625 the lock and sawmill at Lilla Edet was leased by the Swedish Crown to a Scotsman, Hans Carnegie. By 1637 the mills, again administered by the Swedish Crown, had fallen into disrepair; in 1639 repair work on the mills was started by Hindrik Sinclair, and when work was completed in 1642 Lilla Edet was leased to his nephew, Hans Sinclair. In 1644 and 1657 the mills were ravaged by the Danes and were left derelict for several years.[9]

During the late seventeenth century it is possible to measure Scotland's imports of deals from Sweden, using the Danish Sound Toll Register for timber from Stockholm and Norrkoping in eastern Sweden and the Gothenburg town dues record the Goteborgs Tolagsrakenskaper, for western Sweden.[10] In 1685 22 vessels headed through the Sound for Scotland from eastern Sweden carrying 833 dozen deals. In that same year Scotland imported 330 dozen deals from Gothenburg. In 1690 and 1695 ships from eastern Sweden took 167 and 333 dozen deals to Scotland, while Gothenburg supplied 460 and 270 dozen deals.[11]

With regard to Scotland's total import of timber at the end of the seventeenth century, and particularly in comparison to Norway, Sweden was of minimal importance - Scotland's annual import of deals has been estimated at approximately 30,000 dozen.[12] In 1701 Adam Montgomery, a young Scottish merchant in Stockholm, informed Sir John Shaw of Greenock that the timber market could be served much cheaper by Norway.[13]

During the late 17th century imports of timber from Sweden were subsiduary to the more important shipment of bar-iron. In fact, timber was only included in ships cargoes upon sufferance, in the form of dunnage and ballast. That is, a parcel of deals was included in the cargo to ease the storage of bar-iron and to protect the ship's hull. Also, timber acted as 'mastfasting', adding bouyancy and helping to stabilise the ship for ease of handling.[14]

The sub-standard quality of Gothenburg deals, particularly in comparison to their Norwegian counterparts, appears to have been the determining factor in Scottish merchants lack of interest in them. This is apparent from two episodes involving a leading Scottish importer of iron and timber, Thomas Mathie of Prestonpans. In 1713 Mathie acted as agent for Cornelius Thowsen of Gothenburg and sold two parcels of timber from on board the Tryal and the Thomas and Barbara, both docked in Prestonpans. Almost 400 dozen deals were sold by Mathie for £4.10/- sterling per 10 dozen. As this price proved unsatisfactory to Thowsen the dispute was taken before the Admiralty Court, but Mathie insisted he had sold the timber for, 'a fair price considering their quality which I never did see worse'.[15] Mathie's low opinion of the quality of Gothenburg deals appears again in 1726 in his correspondence with a Gotheburg merchant called Tham. Mathie had freighted a Prestonpans brigantine, Concord, captained by Stephen Jolly, to sail to Gothenburg for iron but then to proceed to Norway for his timber cargo - a fairly common practise at that time. As Mathie pointed out to Tham, 'your deals being too dear and not good'.[16]

Unfortunately, no evidence has survived in Scottish trade statistics to outline the developments of imports of deals from Sweden during the first half of the 18th century. When statistics do become available in 1755 it is clear that the place of Sweden within the Scottish market for timber had improved dramatically; the annual report of the newly founded Inspector-General of Exports and Imports for 1755 records the import of 10,610 dozen Swedish deals, over 45 per cent of total deal imports, and second only to Norway which supplied 12,020 dozen deals (see Table 22).[17]

Clearly, there had been an enormous change in the Scottish - Swedish timber trade during the half century preceding 1755. By totalling the port book records for the various Scottish Customs Precincts - most are extant from Michaelmas 1742, it is possible to gain some insight into the earlier period and also into the reason for the growth of imports from Sweden. The following table lists imports of Swedish deals into individual Customs Precincts during 1744.[18]

Leith	1912	dozen	deals
Greenock	692	"	"
Montrose	684	"	"
Prestonpans	598	"	"
Anstruther	520	"	"
Bo'ness	362	"	"
Aberdeen	282	"	"
Dunbar	245	"	"
Perth	104	"	"
Elsewhere	259	"	"

The total import of 5658 dozen deals represents 28 per cent of the recorded Scottish deal imports for 1744 (see Table 2).

A more detailed breakdown of statistics available in the 1744 port books shows a twofold division in the pattern of Swedish timber imports into Scotland; 24 vessels arriving from the east coast of Sweden, and Stockholm in particular provided 21 per cent of timber imports from Sweden - this may be seen as part of the traditional pattern with timber carried as a subsiduary cargo. Gothenburg on the west coast, however, sent 38 vessels which carried 79 per cent of Swedish deal exports to Scotland, over 4,400 dozen deals. These figures suggest that the major role which Swedish timber held in the mid 18th century Scottish timber market was exclusively the result of increased imports from Gothenburg. To check the predominant role of Gothenburg a similar breakdown of the port books for 1755 was carried out; this evidence was conclusive. Just as Sweden's share of the total import market rose from 28 per cent in 1744 to 45 per cent in 1755 so Gothenburg asserted its dominance within Sweden; the various port books give a total import in 1755 of 9,765 dozen deals from Sweden, all but 388 dozen of which were supplied from Gothenburg.

The development of Sweden in general and Gothenburg in particular as a source of deals for the Scottish market during the first half of the eighteenth century cannot be traced using Scottish sources. However, the Danish Sound Toll Register provides information during that period for shipping from Stockholm and Norrkoping.[19] More importantly, it is possible to trace the development of Gothenburg deals from extant sources in Sweden.

The Goteborgs tolagsrakenskaper are the accounts of town dues for all shipping entering or leaving the port of Gothenburg. This source records not only the ship's name, cargo manifest and its date of arrival/departure, but also its tonnage (in lasts) name of master and his home port, the ship's last port of call and its destination. From this excellent source it was possible to compile a list of the annual export of deals from Gothenburg to Scotland between 1720 and 1760.[20] This material is listed in Table 30 which also includes the port's total export of deals as listed in Lind's Goteborgs handel och sjofart 1637 - 1920, as well as the Sound Toll statistics for eastern Sweden.[21]

The figures for exports of deals to Scotland are only drawn from vessels in the Tolagsrakenskaper which declare a Scottish destination. However, the annual reports also include a substantial number of Scottish vessels which give non-Scottish destinations, such as Rotterdam, Campvere and Ostend, and yet do go to Scotland. The figures for exports to Scotland, therefore, should be seen as a minimum which was often exceeded. For example, in 1755 the Tolagsrakenskaper lists 84 vessels leaving for Scotland and carrying 13,112 dozen deals, in addition a further 22 Scottish vessels are recorded carrying 1973 dozen deals to non- Scottish ports. However, of these 22 vessels 11 can be traced as entering a Scottish harbour in the 1755 Precinct Port Books with almost, (from Swedish accounts), 1150 dozen deals on board. Even with this minor problem the Gothenburg source is an excellent one, providing over 90 per cent accuracy for vessels with a listing of Scottish destinations alone.

One question which does arise over the use of statistics drawn from the Goteborgs Tolagsrakenskaper relates to the accuracy of the individual accounts for particular vessels- after all this is the major problem in using the Port Books of both Norway and Scotland.[22]

The accuracy of the Tolagsrakenskaper can be checked between 1736 and 1739 against a series of detailed ships' manifests belonging to several Prestonpans merchants including Charles Sherriff and Alexander Baird. Sherriff and Baird purchased cargoes of iron and timber from Gothenburg merchants including not only the Scots Hugh and George Ross, but also Hull factors such as Thomas Mowld and Anderson and Hall.[23] In a comparison between individual timber cargo entries in the Tolagsrakenskaper with the ships' manifests for ten voyages between Gothenburg and Prestonpans the two sources match almost exactly, to 98 per cent in fact. Whether this is a large enough sample to act as proof for several hundred voyages over four decades may be questionable, but it does suggest that in the Tolagsrakenskaper we have an accurate reflection of Gothenburg's timber exports to Scotland.

Unfortunately, the Prestonpans manifests cannot be compared against the Prestonpans Quarterly port books, these are only extant from c.1744 onwards. However, the survival of cargo manifests in the papers of Charles Irvine,

a leading Scottish merchant in Gothenburg, make it possible to compare the two leading statistical sources against the actual cargoes. Irvine's iron and timber shipments were sent to an ex-Gothenburg merchant, James Rose in Stonehaven between 1746 and 1748.[24]

Vessel	Manifest	Scottish port book	Tolagsrakenskape
Catrina	30 doz 2½" good	10.0.0 deals (g.h.)	210 doz
	71 " 1½" "	2.0.0 cuts "	
	21 " " wrack		
	84 " 1¼" good		
	10 " 2½" halfdeals		
North Star	10 doz 3" good	3.0.0. deals "	57 doz
	" " 2½" "	2.2.0 cuts "	
	" " 1¼" "		
	20 " 1½" "		
	15 " 1¼" wrack		
Christina	110 doz 1¼" good	5.0.0 deals "	130 doz
	20 " 1½" "	2.0.0 cuts "	
Totals	401 doz deals	180 doz deals	397 dozen
	10 doz half deals	65 doz cuts	

In this example the Gothenburg source is again shown to provide a far more accurate reflection of the true level of timber imports.

While the Tolagsrakenskaper would appear to reflect the actual amount of deals carried between Gothenburg and Scotland, the port books in Scotland, and therefore, the annual reports of the Inspector-General from 1755 onwards, appear to seriously underestimate the level of timber imports. Some idea of the extent of this underestimation may be gained from a ship-by-ship comparison between the two sources. In 1755 the Scottish port books record the import of 9,377 dozen deals from Gothenburg. By contrast, the Tolagsrakenskaper suggests those same vessels carried 12,389 dozen deals to Scotland. Therefore, the Scottish source only records approximately 76 per cent of actual imports.

From the evidence of the Danish Sound Toll Register and the Gothenburg town dues returns it would appear that from the late 1730's onwards Scottish imports of deals from Gothenburg became synonymous with the Scottish-Swedish timber trade as a whole. Moreover, apart from a slight pause during the early 1740's Scotland's import of Gothenburg deals expanded rapidly for two decades after 1736, reaching a peak of 17,660 dozen in 1752.

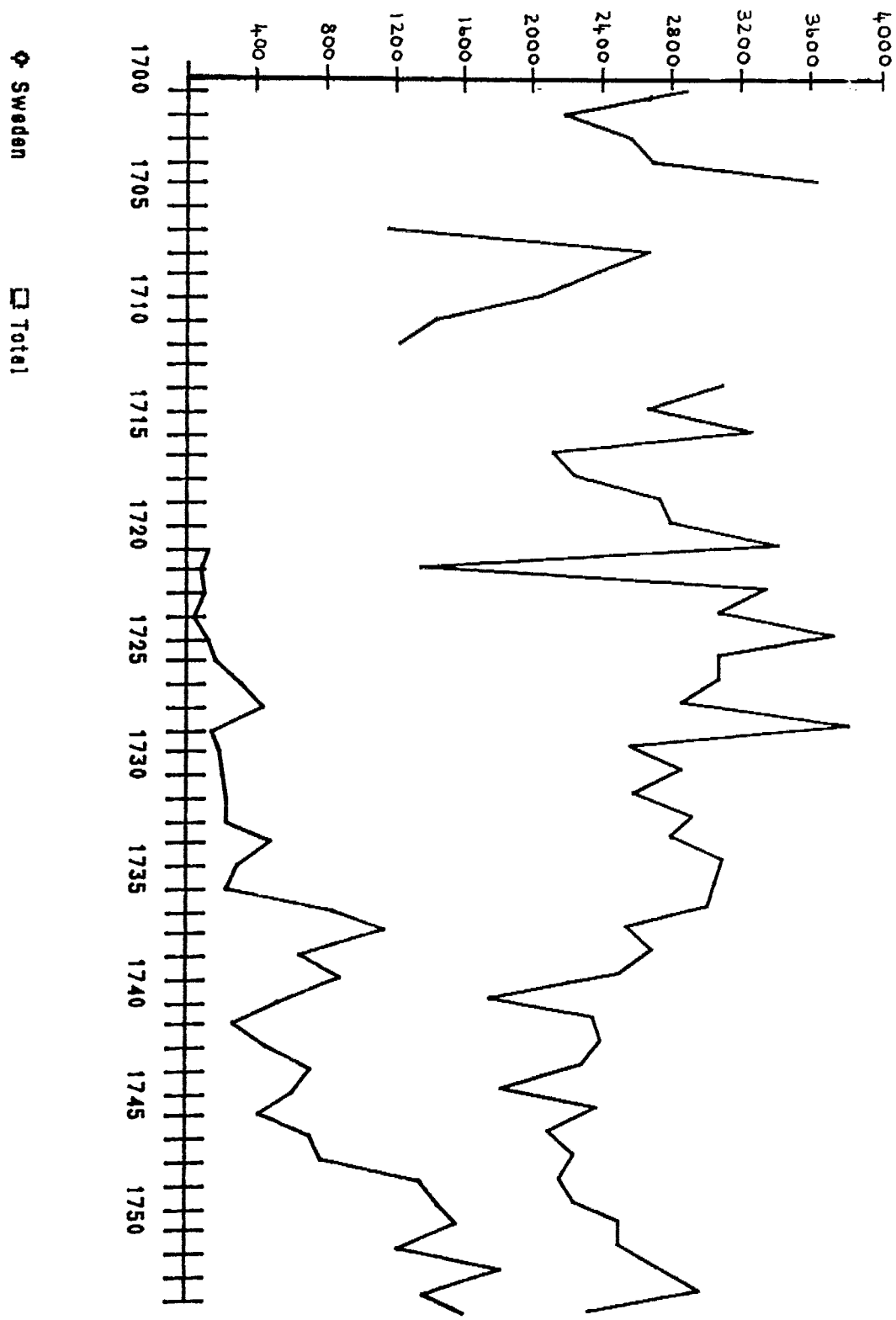
The first indication we have of the place of Gothenburg deals within Scotland's total demand for that item is provided by the combined Scottish port books for 1744. These suggest Gothenburg provided 4,470 dozen deals out of the 5,658 dozen deals which arrived from Sweden and the total of 19,995 dozen deals imported from all sources. The Danish Sound Toll suggests 1,083 dozen deals arrived from eastern Sweden in 1744, while the Tolagsrakenskaper indicates 4,858 dozen deals.

In 1744 Swedish deals accounted for 28 per cent of Scotland's total import. As we have seen, by 1755 when annual statistics begin for Scotland, Sweden provided 45 per cent of the demand for deals. However, it is possible to gain some insight into the growing importance of Swedish deals before 1755 and the start of the annual reports of the Inspector-General for imports and exports.[25] These reports give details of Scottish deal imports between 1755 and 1800. Similar details are available for England and Wales throughout the eighteenth century.[26] If we compare the two sources for the latter part of the century they suggest that from 1755 to 1800 Scottish deal imports represented 8.5 per cent of the deal import figures for England and Wales.

The graph overleaf presents a proxy figure for Scotland's deal imports from all sources, taking 8.5 per cent of the annual figures for England and Wales. These proxy figures are set against the combined Swedish figures in Table 21. This suggests that from 1730 onwards Scottish demand for deals stagnated but that Swedish deals grew in importance, especially after the late 1730's and from 1746 onwards. The graph suggests that by 1749 Sweden was actually the leading source of deals imported into Scotland.

How accurate is the proxy figure of 8.5 per cent? The Scottish port books for 1744 suggest the import of 19,995 dozen deals, and the English and Welsh figure for that year was 209,940 dozen deals. The proxy figure for 1744 would, therefore, be 17,845 dozen deals, slightly lower than

GRAPH 5



Scottish Deal Imports, per great hundred, 1700 to 1754.

the Scottish port books imply. The Scottish port books suggest that in 1744 Scottish deal imports were 9.5 per cent of their English and Welsh counterparts. In his examination of the Norwegian timber trade with England between 1640 and 1710 Stein Tveite suggests that in the early eighteenth century Scottish deal imports were around 5 per cent of English demand.[27] If that figure is a more accurate estimate then the impact of Swedish deals in the late 1740's was actually greater than the graph suggests.

As we have seen, Scottish merchants were deterred from buying Gothenburg deals during the early decades of the eighteenth century due to their poor quality in comparison to Norwegian deals. This difference in quality was based upon a technological lead enjoyed by the Norwegians in sawmilling. As H.S.K.Kent has pointed out the finer 'dutch saws' arrived in Norway over two decades before their introduction in Sweden.[28]

Gothenburg's deals were provided from sawmills on the Gota river, at Trollhattan and Lilla Edet. Under direct management by the Swedish Crown the sawmills had fallen into neglect. However, in 1720 they were returned to their former tenants; this led to an increase in production, rising from a total of 126,600 dozen deals between 1720 and 1729 to 233,300 dozen deals between 1730 and 1739.[29]

During the 1730's Scotland imported an increasing amount of Gothenburg deals; from 1730 to 1734 Scotland imported a total of 8,714 dozen Gothenburg deals and by 1735 to 1739 this figure had risen to 26,266 dozen deals. Moreover, Scotland's share of Gothenburg's total deal exports had risen from 9 to 19 per cent over the same period.

Increased production did not lead to falling prices; in 1732 the prime cost of one great hundred of 1½" x 12ft. best deals was £3.7/-: by 1737 it had dropped to £3.3/6d, mainly due to the exchange rate, and by 1739 it was £3. The same deals cost £3.11/- in 1760 and £5.5/- in 1775.[30]

The year 1738 marked a turning point in Scotland's timber trade with Sweden; in that year Peter Ekman and his brother opened two sawmills at Lilla Edet, producing deals 'according to the Dutch way'.[31] These were the first fine-bladed mills with several blades in the frame to be built in Sweden, and other mill owners soon followed their example. These new mills used the four-cutting-system with up to ten blades.

Before this time only one blade, forged by hand and of considerable thickness, had been used in each frame.[32]

Even with the improvement of both quality and output Gothenburg timber failed to make much of an impact on the cut - timber market in England; accounting for less than 10 per cent of England's total deal imports throughout the 18th century.[33] Again,quality of product appears to have been the determining factor. As late as the early 19th century a London importer, Henry Warburton, reporting to a Parliamentary Committee, spoke of Gothenburg deals as 'fit for rough purposes, both in and out of doors, on account of their durability'.[34] However, being rigid, knotty and inclined to warp they were unfit for joinery work, and therefore commanded a lower price than Christiania deals.

In Scotland however, a very different situation developed. As it was necessary to load some timber with a cargo of bar-iron, due to both Swedish Government regulations and ease of shipping, Scottish merchants appear to have made a virtue out of a necessity and accepted the improved Gothenburg timber as a cargo in its own right.[35]

From a comparison of the total export of deals from Gothenburg and the Tolagsrakenskaper figures for exports to Scotland it would appear that the Scottish market represented the only area to truly accept Gothenburg deals as worthy of importing on their own merit. This situation is reflected in the growing dominance of Scotland as a destination for Gothenburg deal exports, as the following table shows:

A. Total exports from Go'burg
B. Go'burg exports to Scotland
C. B. as a % of A.

	A.	B.	C.
1730/4	94,400 dozen	8,714 dozen	9%
1735/9	138,900 "	26,266 "	19%
1740/4	117,000 "	22,139 "	19%
1745/9	115,900 "	45,746 "	39%
1750/4	148,400 "	73,245 "	49%

Although Scottish merchants had been active in trade with Gothenburg from the time of its foundation in 1621 the half century before the 1730's, when exports of timber to Scotland began their rapid expansion, was not a particularly prosperous era for trade between the city and Scotland. In the staple trade of bar-iron Gothenburg only supplied 37 per cent of the 13,276 tons which Sweden sent to Scotland during the decade 1720 to 1729, a far cry from the position in 1755 when Gothenburg sent almost 2,000 tons in a single year, over 90 per cent of Sweden's total export to Scotland. [36] As we have seen the city's exports of timber had little significance in the Scottish market before the 1730's. This relative depression in trade was reflected in the decline in the size of the Scottish merchant community over the period of 1680 to 1730.[37]

The two decades after 1730 saw three interlinked developments in Scotland's trading connections with Sweden; Scottish trade with Sweden became centred on Gothenburg at the expense of ports in eastern Sweden; deal and bar-iron imports from Sweden expanded, and the Scottish merchant community in Gothenburg also grew rapidly.

The growth of the Scottish merchant community in Gothenburg during the 1730's was based upon the opportunities for smuggling tea from the port into Britain following the foundation of the Swedish East India Company in 1731.[38]

Although the Treaty of Union in 1707 had given Scottish merchants access English colonial markets the rights and privileges of the English Chartered Companies remained a matter of dispute. The monopoly on tea imports held by the East India Company was upheld and confirmed in 1721 with the prohibition of tea imports from Europe [7 Geo 1 - 1721 - cap 21]. With a rate of duty of 1/- per pound plus 25 per cent. ad valorem, and an expanding market in Britain, tea was a profitable item for 'free traders'.[38] As parliament noted:

> Tea is a very principal article of Excise and Customs, and claims the first attention.. being highly valuable in proportion to its bulk and weight; easily purchased, at a low rate, and at any amount, in the foreign ports of Europe; and so highly taxed in this kingdom,as to be a great object of temptation to those who are disposed to defraud the revenue of their country.[39]

Scottish merchants were active in taking advantage of the opportunities offered by this situation; e.g. Robert Arbuthnott from Kincardinshire who had escaped to Rouen after fighting at Killiecrankie in 1689, and was active in the French East India Company, or John Ker of Kersland who founded the Ostende Company in 1720.[40]

With the collapse of the Ostende Company in 1730 Niklas Sahlgren, a Gothenburg merchant, invited two Scots, Colin Campbell and Charles Irvine, to join him in founding the Swedish East India Company. Irvine, a younger brother of the Laird of Drum, had served his apprenticeship under Arbuthnott, while Campbell, third son of John Campbell, esq. of Moy in Morayshire, had been a clerk in the Ostende Company. With Campbell as a Director and Irvine as Supercargo No.1. the Swedish Company was soon dominated by Scots, who as supercargoes, clerks, officers, midshipmen, surgeons, carpenters and sailors provided the experience in the trade which the Swedes lacked.[41] In common with Campbell and Irvine most of these Scots were from the North - East of Scotland and had been active Jacobites, men such as John Tarras of Banff and James Rose and George Bellenden of Aberdeen.[42]

Following a dispute with the British Company in 1740 the Swedish East India Company agreed to stop recruiting British citizens: the agreement includes a list of employees showing just how important the Scots were to the Swedish Company. This agreement appears to have encouraged several of the Scots to settle in Gothenburg and become legitimate merchants enjoying the city's growing economic prosperity, with others, such as James Rose, returning to Scotland, and encouraging trade links from there.[43]

The Scottish community received another influx of members following the '45, including James Moir and George Carnegie, again, both these men were from the North-East.[44]

The direct link between tea smuggling and increased timber imports from Gothenburg is questionable. Was timber from Gothenburg accepted as a cargo in its own right, or did it simply act, often quite literally, as a cover for tea smuggling? Moreover, did the substantial profits from tea smuggling persuade Scots to accept an otherwise unprofitable cargo, deals from Gothenburg? These questions are particularly pertinant given the fact that Scotland alone seemed prepared to purchase Gothenburg deals,

taking 54 per cent of all Gothenburg's deal exports in 1751.

Certainly, examples can be produced in which Gothenburg deals only acted as a legitimate cover for smuggled goods. By its very nature smuggling is a topic for which concrete evidence is hard to come by. It is fortunate then that a complete account of one Scottish tea smuggling venture has survived in the Watt of Skaill papers in the Kirkwall Archives.[45] W.S.Hewison has shown that Orcadian merchants were inveterate smugglers, and in the business accounts of William Watt jnr. and co. papers exist which show just how important the addition of tea could be in adding profit to a necessary but mundane trade.[46]

On July 7th 1775 the Ann, a sloop of c.45 tons burden captained by William Hewison, arrived in Leith from Gothenburg with a cargo of bar-iron and deals, and an illicit loading of tea. The legitimate cargo was purchased from John Tarras, a Scottish merchant in Gothenburg, and included:

18 tons bar-iron		£12.5s. per ton
27 dozen 12ft. by 2½in.	fine deals	£7.18s. per ten dozen
30 " " "	wrack	£5.13s. " " "

In all Hewison was charged £258.15s. for his legal purchases. This part of the cargo was sold in Leith on Watt and co's behalf by the Edinburgh bankers, Forbes and Hunter. Approximately two-thirds of the bar-iron was sold for £14.14s. per ton, and all the timber was sold for £9 per ten dozen deals, earning in all £228.19s. However, freight, import charges and commission cost £62.9s. As Forbes and Hunter pointed out in a letter to Watt:

> we hope the sale will prove to your satisfaction
> for though there appears to be some loss on it by
> the state you sent us, yet we think they are well sold.

In fact, if the remainder of the bar-iron raised Leith prices when sold in Orkney then the venture would have broken even. It is unlikely that this situation caused Watt much concern, because Captain Hewison also loaded 2,300 lbs of Bothea, Congo and Hysan tea costing £184.19s. in Gothenburg. No record has survived of the prices raised in Orkney by this particular cargo, but at 1775 wholesale prices the tea would have sold for £434. For the tea alone this would have given Watt a return of 135 per cent on his outlay, or 44 per cent for the whole voyage.[47]

The inclusion of tea on a particular voyage, such as the Ann's could turn a loss from legitimate trade into a handsome profit. However, the precise relationship between the parallel developments of tea smuggling and Scotland's growing import of Gothenburg deals is not clear. Certainly, tea was a major factor in the growth of the Scottish mercantile community in Gothenburg, and it is surely no coincidence that the period 1731 to 1765 was not only the most successful era in the history of the Swedish East India Company, but also the period during which Gothenburg developed into the major supplier of bar-iron and timber for the Scottish market.[48] But did profits from tea smuggling continually underwrite otherwise non-competitive Swedish prices for timber? In their need for a legitimate cover did Scottish smugglers create the Swedish timber trade with Scotland? The answers to these questions may lie in supply of Swedish timber to a particular part of the Scottish market, the north-east.

Aberdeenshire, Kincardineshire and Angus provided the vast majority of those men who made up the influential Scottish mercantile community in Gothenburg: men such as James Moir, John Scott, John Tarras, George Carnegie and Charles Irvine. Naturally, most maintained close personal and business links with their homeland, but the Scots in Gothenburg appear to have retained particularly close connections with Scotland. For example, this could include joint shipowning with home-based Scots; Stewart and Tarras were part-owners of the Rodney and the Siren with William Graham and James Gray of Eyemouth.[49] Wealthy Gothenburg merchants also continued to wield political influence in their homeland; in 1752 Sir Archibald Grant received the following letter from an Aberdeen merchant:

> According to your desires I spoke to my friend Mr.Charles Irvine about using his interest for you in Aberdeenshire towards the next election, but told me for answer that he had been already engaged; however he desired me to write you that if you will get Mr.James Moir of Stoneywood a noly proseque before the next elections he will get all his friends that qualify to vote for you and those that does not their interest with all their friends and co. If you don't bring this affair about for Mr.Moir, Mr.Irvine has promised to employ his interest for anybody that will.[50]

The 'noly proseque' which Irvine sought for Moir of Stoneywood was a pardon for the latter's activities during the '45. Like many other Scottish merchants in Gothenburg Moir had been a Jacobite and fled to the port as a political refugee. Such was Moir's importance in the '45 that he was specifically exempted from the Act of Indemnity.[51] Several merchants left Gothenburg and returned to the north-east where they used their mercantile wealth to purchase landed estates; for example, George Carnegie bought the Pitarrow and Charleton estates, while his friend John Scott bought Criggie in St Cyrus.[52] The close link between Gothenburg and the north-east of Scotland was recognised by contemporaries; in 1766 when two of their apprentices fled to Sweden, Carron Company immediately contacted Provost Christie of Montrose - 'the likeliest place to leave from'.[53] Given the close connections between the north-east region and Gothenburg, and also the extent of smuggling in this part of Scotland which at times appears to have been endemic, then the timber market, and Gothenburg deals' role in that market, may be of some interest.[54]

A particularly useful insight into the demand for Swedish timber in north-eas Scotland appears in the papers of Sir Archibald Grant of Monymusk. Between 1753 and 1756 James Moir and John Tarras arranged the shipment of three cargoes of bar-iron and deals from Gothenburg to Abderdeen for John Ferguson, agent to Grant of Monymusk.[55] From the invoices it is quite clear that the timber cargo was relatively unimportant, and was included simply as packaging and ballast. Between the three cargoes only 50 dozen deals were carried. Each voyage was arranged on the 'account and risque' of Sir Archibald Grant which meant he received his goods at wholesale rather than retail prices - this probably saved Grant about 10 per cent cost. For Sir Archibald's benefit Ferguson provided the following breakdown of the price of 1 ton of bar-iron and 10 dozen 12ft. x 3in deals.

Price breakdown of bar-iron and deals imported from Gothenburg in 1756.

	1 ton bar-iron	10 doz. 12ft x 3in. deals
Prime cost	£13.5s.-d.	£8.16s 6d.
2% commission	5s.3d.	3s.6d.
Exchange at 1½%	4s.-d.	2s.8d.
Freight	15s.-d.	2. 8s.-d.
Import duties	1.18s.8d.	1. 8s.7½d.
Custom house charges	7s.3½d.	2s.6d.
Insurance at 2½% of prime cost	6s.7½d.	4s.5d.
Sorting and watching timber	-	4s.3d.
Total cost	£17. 1s.10d.	£13.7s.5½d.

The relative unimportance of timber in these shipments for Grant of Monymusk is reflected, not only in the small quantity of deals carried, but also in the rate of freight charged for their shipment. Normally, when bar-iron and deals were considered of equal importance freight was charged at the same rate per last. However, in the Monymusk shipments bar-iron was charged freight at 30/- per last while the timber cargo was only charged a nominal 19/2d.

A contrast to the Monymusk position, and a more precise explanation of the manner in which freight rates were calculated, is provided by the accounts of a voyage from Gothenburg to Inverary in 1760. In that year, as part of the building programme for Inverary Castle and New Town, the Duke of Argyll's factor ordered a shipment of bar-iron and deals from George Carnegie, a Scottish merchant resident in Gothenburg. Carnegie sent over 40 tons of bar-iron and 274 dozen deals of various proportions in the Young Tobias, captained by Olaf Bagge. Carnegie included two tables to show how he had reached a total freight charge of £153.18s.[56] Bar-iron and deals were converted into lasts in the following fashion:

2	tons, or 15	ship-pounds	of bar-iron	equals	1 last
5	doz.	12ft x 2½in	deals	"	" "
6	"	" 2in	"	"	" "
8	"	" 1½in	"	"	" "
10	"	" 1¼in	"	"	" "

From this table the Young Tobias' cargo was charged freight in the proportions outlined below;

300	ship-pounds	equal	20	lasts
60	doz	2½ in deals	12	"
44	"	2 in "	7¼	"
30	"	1½ in "	3 3/4	"
140	"	1 in "	14	"
			57	lasts total

Freight was charged on this shipment at a rate of 54/- per last, irrespective of the particular cargo type. This may appear an excessive rate compared to the Monymusk shipments, but the west coast of Scotland voyage always cost substantially more than the east coast rate; e.g. in 1772 cargo to the east coast of Scotland from Gothenburg was charged freight at 30/- per last compared to 46/- for the west coast.[57] Moreover, the freight rate in 1760 was particularly high because of the activities of

Prussian privateers off the Swedish coast.

The lack of demand for timber in the Monymusk shipments provides a single example of a more general trend in the north-east of Scotland; from the Scottish Custom Precincts it is possible to show just how little impact Swedish timber had on a regional market in which it apparently enjoyed several advantages. The north-east coast from Peterhead to Arbroath was included in the Aberdeen and Montrose port books.[58] The following table compares the deal imports of the north-east ports from Norway, Sweden and all sources, with the imports of Scotland 'in toto'.

A: Aberdeen and Montrose total deal imports as a % of Scotland's total deal imports.
B: Aberdeen and Montrose Norwegian deal imports as a % of Scotland's Norwegian deal imports.
C: Aberdeen and Montrose Swedish " " " " " Swedish deal imports.

	1755	1765	1775	1785	1795
A.	16%	11%	17%	15%	7%
B.	19%	16%	25%	20%	12%
C.	11%	4%	11%	12%	2%

From this statistical evidence it would appear that timber importers in the north-east of Scotland rejected Swedish deals in favour of their Norwegian counterparts. From a series of letters to James Carnegie - Arbuthnott, a young Scottish merchant in Gothenburg, from various home-based Scots, it is apparent that quality was the major determining factor in this rejection of Gothenburg deals.[59]

James Carnegie-Arbuthnott of Balnamoon near Brechin was the son of the 'rebel-laird', also James, who fled to Gothenburg after the '45 with his friend the aforementioned George Carnegie of Pittarrow. In 1771 young James, having served his apprenticeship in George Carnegie's merchant house, purchased the Gothenburg export firm of William Williamson.[60] As Williamson had acted as export agent for the Hull firm, Williamson and Waller, so most of Balnamoon's business was done with England. However, some contacts were maintained with Scottish businesses, but his correspondants appear to have been hard to please...

In 1773 the Aberdeen merchant Francis Logie wrote:

> I particularly desired to have the deals clear in the colour and those were quite the reverse. This you may think of little consequence, but it will make a difference of 15 to 20 per cent in the sale and I shall actually be a loser by Captain Symer's cargo.[61]

To Logie's criticism of the quality of Gothenburg deals we should add that of Provost Christie of Montrose concerning size:

> with respect to the wood[as no favours are given here] it must be all of the thick kind and of that sort you call best wracks - as the fine kinds here will not fetch the price. We would be much obliged to you to be at particular pains in the choice of wood and to get it as good of that sort as you possibly can. In general we have lost money by the wood imported here from your place- excepting the last parcel which Capt. Johnson shipt, being 2½" wrack - these indeed made a handsome profit and entirely owing to their being well chosen.[62]

The attitude of merchant's in north-east Scotland towards Gothenburg deals suggests that although smuggling had an indirect influence upon the trade by encouraging trade links and the growth of a Scottish merchant community in Gothenburg its importance was not decisive. As both Logie and Christie make clear Gothenburg deals entered the Scottish market on their own merits and their ability to compete with other sources, both judged by quality and price.

Gothenburg deals were of particular importance in the Scottish cut-timber market during the years immediately before and after the Seven Years War; in 1755 the port was the single largest supplier of deals, sending 9270 dozen. By 1765 the figure had grown to 12,760 dozen deals, but in 1775 Gothenburg sent only 6,252 dozen deals. The stagnation of deal imports from Gothenburg in the latter part of the 18th century is shown in the following table:

Gothenburg cut-timber exports to Scotland.

1771/4	Annual	average	8,480	dozen	deals
1775/9	"	"	10,691	"	"
1780/4	"	"	11,625	"	"
1785/9	"	"	11,766	"	"
1790/4	"	"	10,375	"	"
1795/9	"	"	7,723	"	"

The extent of the decline in Gothenburg's exports to Scotland is made clear when these figures are compared to the average between 1750 and 1754 when the Swedish port sent 14,649 dozen deals annually.

To form a more precise idea of the reasons behind the declining importance of Gothenburg deals in Scotland it is necessary to examine the changing pattern of imports on a local level. This table shows various Precincts' imports for selected years.

Scottish deal imports from Gothenburg.

A. Precinct's Gothenburg import as a % of Scotland's total deal import Gothenburg.
B. Precinct's Gothenburg import as a % of Precinct's total deal import.

	1755		1765		1775		1785		1795	
	A.	B.	A.	B.	A.	B.	A.	B.	A.	B.
Aberdeen	7%	26%	2%	7%	10%	23%	12%	32%	1%	7%
Alloa	9%	51%	17%	65%	13%	82%	18%	73%	14%	95%
Bo'ness	12%	70%	17%	56%	4%	19%	20%	29%	13%	12%
Leith	27%	64%	16%	32%	12%	25%	5%	10%	5%	10%
Perth	8%	86%	7%	57%	13%	89%	14%	69%	27%	83%
Prestonpans	11%	69%	9%	65%	14%	50%	8%	56%	6%	41%
Total Gothenburg import.	9,270 doz.		12,760 doz.		6,252 doz.		8,578 doz		8,425 doz.	

Apart from stagnation and the general decline in overall importance indicated by columns B., the table shows two trends in Scotland's deal imports from Gothenburg; firstly, a growing concentration of imports on a few ports, Alloa and Perth in particular; and secondly, the decline in imports to Leith, the most important market in mid-century Scotland with 27% of total imports of Gothenburg deals in 1755.
The rise in imports in the Alloa and Perth Customs Precincts provides a clear indication of the importance of quality in determining the extent of imports of Gothenburg deals to the Scottish market. Both areas combined a demand for bar-iron with a need for rough, hardy cut timber for industrial construction - for mills and mines.

The importance of the coal industry in the Alloa region as a source of demand for Gothenburg deals is made plain by the Account books of James Allan, an Alloa timber merchant.[63] Although Allan's most important sales item was timber balks from Memel, in the accounts he records sales of substantial amounts of Gothenburg deals to collieries at Alloa, Clackmannan, Kennet and Dunmore, as well as other industrial works such as the Alloa Tile and Glass Works.

The reasons why the Perth Customs Precinct was dominated by supplies from Gothenburg are particularly complex. The city's merchants maintained close links with the merchant community in Gothenburg; not simply, as one would expect, with the Scots, but also with the Swedes. In 1772 Perth was visited by a member of Arfridson and co., the largest merchant house in Gothenburg.[64] The region's importance in the Scottish Linen Industry, particularly the high number of Lint-mills built there, created a demand for construction timber, for which Gothenburg deals were well suited.[65] This situation was reinforced by local and national shipping patterns. The two rival sources of cut-timber for sales in Perth were Russia and Norway. However, Russian deals were only significant in the Leith Precinct before the late 1780's. Moreover, they only competed directly with the top quality, finely cut Gothenburg deals, rather than the rough 'wracks' or seconds which dominated the Perth market. Norwegian deals were increasingly carried to Scotland by Norwegian skippers without a pre-arranged buyer, and few vessels would take the long journey up the Tay without one. Also, Perth appears to have had particular attractions to the Scottish skippers who dominated Scottish-Swedish shipping, especially if they had local contacts.[66] That is, the Precinct appears to have been less than stringent about smuggling; from a ship-to-ship comparison of Gothenburg recorded departures and Perth recorded arrivals it seems that only 60 per cent of deals imported into Perth paid the Customs duty.[67]

The collapse of sales of Gothenburg deals in the Leith market, and also the general stagnation of sales through-out Scotland during the latter half of the 18th century can be directly linked to the arrival of cut-timber from Russia. The decade 1755 to 1765 saw a substantial increase in European timber prices: this, together with the expansion of Scottish trade with Russia in general and the increasing demand for quality deals for buildings in the 'New Town' of Edinburgh, provided the stimulus for imports of deals from St. Petersburg.[68] This table shows just how immediate and dramatic that introduction was:

Leith Deal Imports 1760 to 1774.

	Norway	Sweden	Russia(annual averages)
1760/2	2207 doz.	2970 doz	27 doz
1763/5	3073 "	2713 "	993 "
1766/8	2280 "	2000 "	1907 "
1769/71	1880 "	973 "	2617 "
1772/4	1393 "	1010 "	2377 "

By the early 1770's the market for Gothenburg deals in Leith had collapsed. In 1772 the Edinburgh merchant house Mayelston and Brodie informed James Carnegie-Arbuthnott in Gothenburg that:

> a considerable amount of Swedish iron is shipped to Edinburgh on consignment and a few deals or battens are generally shipped in the vessels that load iron, but in general they bring little more than costs and charges.[69]

The reason for this was outlined by another Scottish merchant house who told Carnegie-Arbuthnott that the fact that they no longer traded with Gothenburg:

> was principally occasioned by the difference in the price of iron and deals with you and what we have from Russia... we are persuaded your place suffered by the high price they brought iron and deals to which obliged people to try about for another market.[70]

The cost of imported deals in Scotland was made up of three major components; firstly, the prime cost, commission and duties in the country or origin; secondly, the cost of shipping freight to Scotland; and thirdly, import duties charged by the British government. It is possible to examine these costs for the 'standard hundred' of Russian deals and their Swedish equivalent to see where the price difference lay.

The 'standard hundred' of ten dozen deals, twelve feet long, eleven inches wide and one and one-half inches thick was the unit used to price Russian deals of various lengths and thickness.[71] The equivalent Gothenburg deal which was priced out of the market was the 'best', twelve feet long, by nine inches wide and one and one-half inch thick. The prices which follow are for 1775.[72]

	Sweden	Russia
Prime cost	£5. 5/-	£3. -.
Freight	£1.14/-	£2.12/-
Import duty	£1.10/-	15/-

The substantial difference in costs in Sweden and Russia was not simply due to lower Russian production costs, but was also the product of a liberal Russian commercial and maritime policy in contrast to mercantilist Sweden.

In Sweden the manufacture of wood products was discouraged for the benefit of the ironworks, which were great consumers of charcoal and the darlings of the authorities.[73] The export of deals from Sweden's Baltic provinces, which with their substantial timber reserves could perhaps have competed with the Russian product, was limited by an ordinance restricting its shipment to Swedish vessels, and in Gothenburg on the west coast a substantial levy was placed on goods exported in non-Swedish bottoms.[74] This levy produced a large price surcharge for Scottish skippers.

Gothenburg deal prices 1772.

'best'	12ft x 9in x		2½in	£6.10s.	Swedish	vessels	£7. 5s.	British vessels
'wrack'	"	"	"	£4. 9s	"	"	£5. 5s	" "
'best'	"	"	1¼in	£3.16s	"	"	£4. 4s	" "
'wrack'	"	"	"	£2.10s	"	"	£2.18s	" "
battens	"	7in.	2½in	£4.16s	"	"	£5. 5s	" "
"	"	"	1¼in.	£2. 7s.	"	"	£2.11s	" "

Without this substantial price levy Gothenburg deals might have fared better against the Russian alternative which faced a far higher freight cost, reflecting the greater distance to travel - 1,290 and 508 nautical miles to Leith from St.Petersburg and Gothenburg respectively.

However, the root of the problem and the one price difference which Gothenburg deals could not compete against was British import duties. In fact, these duties amounting to 30/- in 1775 were levied equally on ten dozen deals from Russia or Sweden. The difference was that these duties were levied 'by the tale', that is numerically with no regard to actual timber content, as long as the deals were less than 20ft. long and 3¼in thick.[75] Although there was a type of Gothenburg deal 12ftx9inx1½in the Russian equivalent or 'standard hundred' did not exist, and was simply a unit for calculating prices from. Normally, Russian deals measured as close as possible to the 20ft limit, as opposed to Gothenburg deals which really were 12ft long. This, added to their greater width gave Russian deals twice the timber content of Swedish deals, and therefore halved the duty.

During the latter part of the eighteenth century the amount of Scottish deal imports from Gothenburg declined from the levels reached during the 1750's. However, the precise timing of this decline is a matter of conjecture; the Swedish deal imports recorded in the annual reports of the Inspector-General from 1755 (see Table22) and used in drawing up

Graph 2 would suggest that deal imports stagnated after the mid-1760's, apart from a slight recovery between 1790 and 1792. However, the evidence of the Tolagsrakenskaper presents a somewhat different picture; although the level of Gothenburg deal exports between 1771 and 1800(see Table 31) never reached the previous height of 17,660 dozen in 1752, the general level appears higher than the Scottish source implies. From the Gothenburg source exports to Scotland declined between 1772 and 1776, again in 1783 and 1788 to 1789, but only fell continually from 1793 onwards. Moreover, if we compare the two sources the extent of under-entry in the Scottish source becomes clear; in 1775 the individual entries in the Scottish port books give a total import from Gothenburg of 6,252 dozen deals, but the Swedish source lists 7,362 dozen. Again, in 1785 the Scottish port books list 8,578 dozen deals imported from Gothenburg, as opposed to 14,512 dozen deals listed in the Tolagsrakenskaper.

Although the level of deal imports from Gothenburg may be difficult to quantify, some idea of the true situation may be gained from an examination of those factors which contributed, either directly or indirectly, to promoting deal imports from Gothenburg earlier in the century.

During the latter part of the eighteenth century the Scottish merchant community in Gothenburg declined as Scottish trade with the Baltic countries expanded and Scottish merchants took advantage of new opportunities. In 1773 William Cadell of Carron ironworks still felt that Gothenburg offered openings for Scottish merchants; in that year he told Mr.Douglas that:

> I find that your son Willie may have an opportunity of going into company with Mr. George Fletcher at Gothenburg, provided you can raise a capital of £1,000 for him. I think this opportunity of going into business for himself a very favourable one - considerable fortunes have been made in trade at Gothenburg and with industry and care there is no doubt money is still to be made there as their barr iron will ever be a great and staple article.[76]

In fact, as we will see Gothenburg bar-iron exports to Scotland faced increasing competition from Russian supplies from the late 1760's onwards.

The Scottish merchant community in Gothenburg declined during the 1760's

as the generation which had arrived after the '45 either died, as in the case of Thomas Irvine, or returned to Scotland with a pardon and a sizeable fortune, for example, George Carnegie.[77] Some idea of the prospects for Scots in Gothenburg in the middle of the century is provided by John Wilson, a leading Scottish merchant in the port and a director of the Swedish East India Company. When Wilson retired to London he estimated that during his time in Gothenburg between 1759 and 1771 he averaged a clear profit of £5,000 per annum. Wilson not only purchased a landed estate, like several other Scottish merchants, he also put capital into an industrial concern, Wilsontown ironworks.[78]

During the 1770's Scottish merchants in Gothenburg faced a series of difficulties; their problems are evident in the papers of James Carnegie-Arbuthnott. Carnegie was born in Balnamoon near Brechin in 1740, and in 1771 he took over the Gothenburg firm of William Williamson in partnership with William Shepherd, the firm's former clerk. Williamson was the representative in Gothenburg of the Hull firm Williamson and Waller, and in 1770 he returned there.[79] Carnegie had worked with the trading house of George Carnegie, and continued in Gothenburg until 1779. However, his letter-books detail the growing difficulties for foreign factors; export duties on such men were increased, as were the residence requirements. Moreover, larger firms such as Hall and Co. received financial advances which allowed them to undercut Carnegie. Also, by 1773 the Swedish firm of Arfridson owned all the Lilla Edet sawmills and increased their prices to Carnegie.[80]

The difficulties facing Scottish merchants in Gothenburg coincided with expanding opportunities in the Baltic. There does appear to have been a direct shift from Gothenburg to the Prussian port of Memel. Appendix 4 tells of John Harlaw and Patrick Byres, two young Scots who trained in Gothenburg but eventually shifted their attention to the Fir timber trade with Memel, Byres as a merchant and Harlaw as a shipmaster.[81] Moreover, Byres partner was the British consul in Memel, James Durno, the son-in-law of the Gothenburg merchant James Moir of Stoneywood.[82]
It is a measure of the situation for Scots in Gothenburg that two sons of George Carnegie were unable to find places and eventually went to India.[83]

As late as 1799 it was still possible for Henry Brougham to remark after visiting Gothenburg that, 'the principal merchants are British, chiefly Scots.[84] However, with notable exceptions such as Thomas Erskine, 9th Earl of Kellie, Scottish merchants in Gothenburg became increasingly naturalised: as early as 1794 the British factory in Gothenburg could not find a British-born treasurer for the poor box and in 1825 the factory rejected the offer of British privileges for its members. As E.B.Grage has pointed out, the Scots had become Swedish.[85] Individual examples can be found in which parcels of smuggled tea were carried alongside legitimate cargoes of Swedish deals and bar-iron and underwrote their sale in Scotland. For example, in 1748 Charles Irvine told James Rose that:

> it is well known to every person carrying on trade from Gothenburg that the profit upon iron and deals on such a small ship as the Mary of Peterhead will not bear the expense of navigation besides tear and wear on the ship were it not for the high freight and charges put upon fine goods shipped at the same time.[86]

Although the activities of the Swedish East India Company in Gothenburg undoubtably encouraged the growth of the Scottish merchant community in the town and of trade links with Scotland it is clear from the testimony of the Montrose importers discussed previously that Swedish deal imports into Scotland were accepted or rejected for their own sake.

The link between Gothenburg deals and smuggled tea was largely circumstantial. This conclusion is reinforced by a comparison of the import patterns for each item during the latter part of the eighteenth century. The 1760's and 1770's saw the relative stagnation of Scottish imports of Gothenburg deals compared to the high points of the 1750's. However, tea smuggling increased dramatically over the same period; by the 1770's Edinburgh was importing over 800,000 lbs of tea of which over 80 per cent was smuggled. In 1776 71,754 lbs of tea were sent to Scotland from London, the only legal source for tea imports, but Scotland sent over 181,000 lbs of tea to England.[87] Scottish tea smuggling had grown to epic proportions, with enormous political and economic ramifications, not least of which was the near bankruptcy of

the English East India Company.

During the 1760's and 1770's Scottish tea smuggling from Gothenburg underwent a process of consolidation and combination. Tea smuggling became centred on Edinburgh in the east and the Galloway and Ayrshire coasts in the west. In Edinburgh merchant associations were formed to buy and ship their own supplies, while in the west smuggling was dominated by three 'companies'; the Clovan Company at the Water of Orr; the Mull Company along the Mull of Galloway, and the Carrick Company on the Ayrshire coast.[88] Increased Customs activity deterred the more casual shipment of small parcels of tea alongside other cargo, and the trade with Sweden became increasingly divided into legal and illegal shipments. For example, in 1774 Provost Christie of Montrose, once a notorious centre of smuggling, wrote to James Carnegie-Arbuthnott in Gothenburg:

> you will please put the captain and crew on their guard to bring nothing here that is seizeable, for a few pounds of tea will lose their vessel.[89]

From a situation where small unarmed craft carried tea with legitimate items and relied on stealth, this period saw the use of large, well-armed vessels solely concerned with smuggling, and using force to achieve their aims. In the south-west several Scottish vessels were involved in tea smuggling, as large as 300 tons burden with 24 guns mounted and 80 men on board - in one year one such vessel carried a total of 157,000 lbs of tea in three voyages, earning approximately £1,000 per trip.[90]

The turning -point for Scottish tea smuggling from Gothenburg came in 1784 when, on the advice of Adam Smith, Pitt the Younger slashed the import duties on tea with his Commutation Act. However, this had no influence on annual import figures for Gothenburg deals. Rather, imports of Gothenburg deals declined immediately after 1787 when Pitt's Consolidation Act increased the import duty on deals and disadvantaged Gothenburg deals in comparison to their larger, better quality Russian rivals.

During the latter part of the eighteenth century Swedish bar-iron exports to Scotland faced increasing competition from Russian supplies; in 1755

Sweden sent 1,470 tons of bar-iron, while Russia sent only 135 tons. However, by 1765 Sweden sent 1,785 tons compared to Russia's 767 tons, that is 63.8 per cent and 27.4 per cent respectively of Scotland's total imports. By 1769 Russia surpassed Sweden as a source of bar-iron for the first time, sending 2,065 tons compared to Sweden's 1,249 tons. For the next decades the two sources divided Scotland's needs fairly evenly between them, but from 1785 onwards Sweden averaged 60 per cent of the market.[91]

Obviously, Gothenburg's mid-century position as a major source of bar-iron exports to Scotland would have done much to encourage trade in general. However, there does not appear to have been a direct correlation between bar-iron and deals. For example, in 1755 Sweden supplied 1,470 tons of bar-iron and 1,061 great hundred deals, but in 1790 bar-iron imports from Sweden had almost trebled at 3,692 tons while deal imports at 989 great hundred remained at a level similar to the 1755.[92] Moreover, the post-1785 period when Swedish bar-iron regained a dominant position in the Scottish market is also the time when Russian deals overtake Swedish supplies in value if not in number.

As we have seen there were practical reasons for shipping deals alongside bar-iron, to protect and stabilise the vessel. Moreover, government regulations in both Sweden and Russia insisted the two be carried together. However, the Russians set a ratio, but in Sweden, according to James Carnegie - Arbuthnott:

> no quantity of deals is limited to the iron, but every vessel has the liberty to take in so many deals she can carry provided she have iron for ballast.[93]

The evidence provided in the letter-books of James Carnegie-Arbuthnott for the 1770's suggests that Swedish bar-iron and deals lost out due to competition from Russia, and that Swedish deals suffered in comparison to their Russian rivals over quality and price. Moreover, one consequence of the arrival of higher quality Russian deals was to push down the quality of Gothenburg deals. For example, in 1772 Francis Logie of Aberdeen told Carnegie-Arbuthnott:

> if Swedish iron does not fall in price there will be no consumpt for it here as the Russian is every day coming more generally into use- there has not this season been any importation here but mine

> and it is inconsiderable.. let the deals be as clear and square on the edges as possible - rough sawn is species that answers best here - do not send any fine.[94]

The price of Gothenburg deals suffered adversely in comparison to Russian deals during the latter part of the century due to changes in the three major factors which contributed to their final cost; the prime cost, the freight rate and British import duties. In 1773 James Inglis Jnr, an Edinburgh timber importer, provided the Trustees involved in building the Scottish Record Office with his price schedule; he offered 1½ inch thick Gothenburg deals at £8.10/- per great hundred and the equivalent amount of Russian deals at £9 (see Appendix 5).[95] The figures provided by Henry Warburton for Gothenburg and Russian deals in London in 1775, shown on p. 85 suggest a total cost to the importing merchant of £8.9/- and £6.7/- respectively. Although these figures may not correspond exactly they do imply that one reason for the growing preference for Russian deals may have been the greater profit which could be made.[96]

Warburton's figures of £5.5/- and £3 for the prime cost of deals in Gothenburg and St Petersburg indicate that the discriminatory duties imposed by Swedish government seriously underminded the ability of Gothenburg deals to compete.

Duties were levied on foreign bottoms to encourage the use of Swedish ships, but the Inspector-General's figures show that British vessels dominated Scottish trade with Sweden and so the duties applied to most of Scotland's Gothenburg deal imports. The use of Swedish vessels peaked in 1761 when they carried 837 great hundred deals compared to 431 great hundred in British vessels, but during peacetime this balance was more than reversed; in 1791 for example, only 42 out of 1,376 great hundred deals were brought from Sweden in that nation's ships.[97]
The cost of shipping deals from Gothenburg to Scotland varied during the season, from year-to-year and the west coast trip cost substantially more than the east coast voyage. The available freight costs for Gothenburg and Scotland are shown in Table 32.

During the latter part of the eighteenth century the advantage of lower

freight rates was lost to Gothenburg; Sven-Erik Astrom has shown that the retail price of timber from the Baltic doubled in comparison to freight between 1760 and 1810. This decline in the importance of freight greatly favoured Baltic timber where freight was more important.[98]

Warburton's Russian and Gothenburg figures also show the advantage held by the larger Russian deals when British import duties were levied. As duty was paid 'by the tale' within large size perameters, it was already twice as costly to bring in Gothenburg rather than Russian deals in 1775. This problem for Swedish imports increased enormously from 1787 onwards with the rapid rise in import duties; these rose from 30/- to 53/- in 1787 and by 1797 reached 87/6d.[99]

The combination of the two statistical sources and a series of factors such as the merchant community in Gothenburg, discriminatory tariffs and import duties would suggest that imports of Swedish deals into Scotland did not decline from one specific cause, or at one particular time. Rather, the cumulative effects of several different influences increasingly marginalised deal imports from Sweden; from a mid-century position in which Sweden supplied approximately half of Scotland's softwood timber needs, in 1800 the 'Declared values' suggest Swedish deals cost only £6,242 out of the total figure for softwood timber imports of £167,885. Moreover, the figures also provide evidence on the decline in the quality of Swedish deals; after a decade in which rising freight and import duties would have pushed up the price of Swedish deals they had a 'Declared price' of only £10.19/7d - by contrast Russian deals are recorded at £26.9/9d (see Appendix 2).

Footnotes.

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CHAPTER THREE

SCOTTISH IMPORTS OF CUT TIMBER FROM RUSSIA

From late 1742 onwards it becomes possible to compile a detailed statistical examination of the Scottish timber trade, because of the survival of the quarterly port books for each of Scotland's Customs Precincts.[1] Each Precinct's port book provides a ship-by-ship listing of imports, including not only each vessel's cargo, but also its name and port of departure, as well as the captain's name and that of the importing merchant. Examples of the type of information on timber imports which can be gleaned from this source include Table 2 which shows Scotland's total importation of deals during 1744, and Table 19 which lists the annual deal import into the Leith Customs Precinct from 1743 until 1795. Although these tables provide invaluable information on softwood timber imports the method used to compile them is both time-consuming and laborious; to extract information from this completely non-aggregated source it is necessary to record each individuals cargo listed in every quarterly port book.

The tedium experienced by the modern historian in attempting to use the port books as a source of information on Scottish trade appears to have been shared by government officials in the mid-eighteenth century; long delays inevitably followed any attempt to collect relevant information as it was necessary to send a circular letter to every Scottish Customs Precinct. In 1754 the Board of Trade in London suggested:

> the necessity of an Account being laid before them Yearly of the Exports and Imports to and from that part of Great Britain called Scotland in order to enable them to examine the true State of the Trade of the Kingdom.

Later that same year the office of Inspector-General of Exports and Imports for Scotland was established in Edinburgh.[2]

From 1755 until 1800, with the exception of 1763 and 1769 when no report is available, the Inspector-General's annual reports form the single most important source of information on all aspects of Scotland's foreign trade. Regarding Scottish imports of softwood timber, each annual report lists various commodities, their country of origin, the proportion carried in British or foreign vessels, and also provides each item with an official value.[3] The Inspector-General compiled his report from a series of summaries prepared by the customs officers in each Precinct and not by adding the ship-by-ship entries in every quarterly port book - this may help explain

discrepancies found in comparisons between the Inspector-General's figures for certain years and import totals compiled by adding every individual cargo.

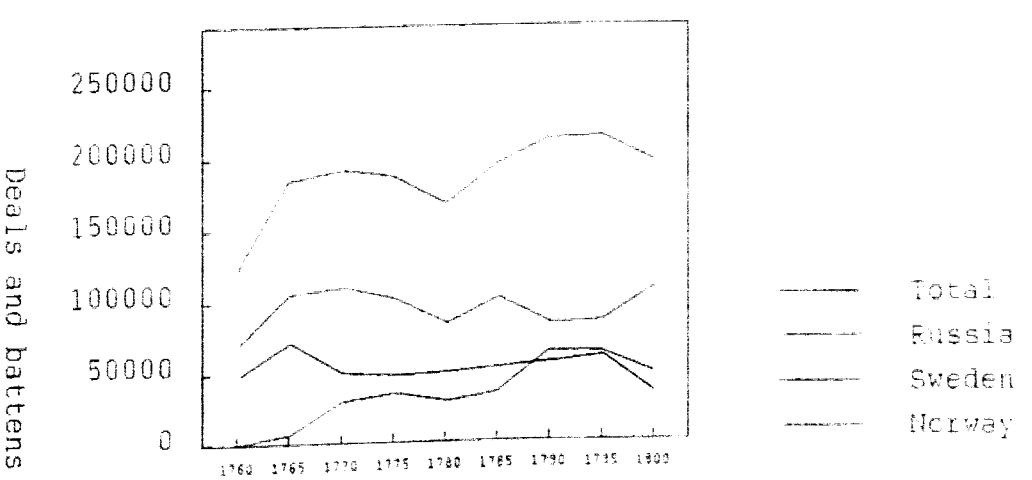
Appendices 1 and 2 show the type of information on timber imports provided in the Inspector-General's reports. However, in attempting to use the annual reports of the Inspector-General as a source of statistical information on the Scottish timber trade it must be remembered that the reports were intended as a record of the customs duties paid by various categories of goods, and not as a record of items imported per se.[4] This situation is particularly acute with the most important type of softwood timber imports found in the Inspector-General's reports; 'ordinary deals' was a term used to describe sawn boards of up to $3\frac{1}{4}$ inches thick, between 7 inches and 11 inches wide, and between 8 feet and 20 feet long. All deal imports within these wide perameters paid a standard duty in 1755 of £1.8s.$7\frac{1}{2}$d. per ten dozen pieces when imported in British vessels. This import duty was levied 'by the tail', that is, irrespective of the possible variety in a cargo's actual timber content. For example, in Norway each port produced deals to its own standard length; this ranged from 8 feet in Bergen, through 12 feet in Christiania, and up to 14 to 18 feet for Halden, yet cargoes from each of these ports would enter the Inspector-General's report as having exactly the same value - because the duty charged was identical.[5] Obviously, this wide range in size, to say nothing of the possible differing quality of deals, creates problems in any attempt to compare the various sources listed in the annual reports. Other problems occur with attempts to use the 'official value' provided in the reports; unlike the actual market price of timber in Scotland which could vary enormously from year to year, especially in wartime, these 'official values' remain static. Moreover, they represent not the retail value of the imported goods in Scotland, or even the quayside value of the goods, but are supposedly the prices c.1755 at which these goods could be purchased in their country of origin - an 'estimate of the first cost or value.'[6] This situation is particularly anomalous for softwood timber imports as these 'official values' exclude the cost of shipping a timber cargo from its country of origin to a Scottish port - in the timber trade the charge for freight was usually the largest single portion of the final retail cost.

The statistics provided on softwood timber imports in the first annual report of the Inspector-General in 1755 provide a useful insight into the more general nature of Scotland's timber trade in the mid-eighteenth century. Two major themes emerge; firstly, at this time the timber trade was almost totally dominated by one form of import, the 'ordinary deal'. Secondly, these deal imports, and indeed most of the other categories of imported timber, were drawn from a variety of Norwegian and Swedish ports. Furthermore, from other sources,notably the individual port books, it is clear that the substantial Swedish import was provided, for the most part, by Gothenburg- a point which further enhances the primary importance of the Scandanavian littoral in supplying Scotland's timber needs.

During the latter part of the eighteenth century, that is, over the period covered by the annual reports of the Inspector-General, the Scottish timber trade underwent a three-fold structural change in the level, form and source of imports. Although the level of Scottish softwood timber imports rose dramatically, the traditionally dominant form of timber imported, the 'ordinary deal', was supplanted by imports of uncut fir timber balks. Moreover, the geographical source of Scottish timber imports moved eastwards, away from the ports of the Scandanavian coastline and into the Baltic Sea. This structural change in the pattern of the Scottish timber trade became synonymous with the growth of imports of balk timber from the Prussian port of Memel. Even so, elements within the structural change in imports also appear in the relatively stagnant market for cut timber deals, in particular, the growing importance of deal imports from Russia provides another example of the goegraphical expansion in the sources supplying the Scottish softwood timber market.

The Inspector-General's annual figures for Scottish imports of Russian softwood timber deals and battens are presented in tables 22 and 24 and in the following graph:

Scottish deal and batten imports from Russia, per dozen, totalled into 5 yr periods, 1756 to 1800.



From this information several conclusions may be reached concerning the place and relative importance of Russia as a source of softwood timber for the Scottish market, especially in comparison to the other major sources of imports, Norway and Sweden. From these figures it is apparent that Russian imports first accounted for a significant proportion of Scotland's total imports from 1765 onwards, and also that, to some extent, Russian supplies directly competed with, and replaced imports from Sweden. However, it would also appear that the overall impact of this new source was limited; Russian imports only surpassed those of Sweden in nine annual reports - at irregular intervals, and only overtook Scotland's major supplier Norway, over two years, 1787 to 1788. In essence, over the period from 1765 onwards, Russia emerges as a new and important source of deals and battens, however, the Inspector-General's figures also appear to suggest that numerically imports from Russia remained secondary in importance to the two established suppliers of Scotland's timber needs.

In fact, any attempt to evaluate Russian timber supplies based solely upon this source seriously undervalues their relative importance. Unfortunately, as we have seen, the accounting method used to compile the Inspector-General's reports made no allowance for any variety in either the quality or size of imports from different sources. A more precise example of this problem is provided by the building accounts for Gordon Castle during the early 1770's. The Duke's architect, James Baxter, purchased several timber cargoes from different sources, but when high quality material was needed Russian timber was preferred. Appendix 3 contains three highly instructive letters between Baxter and James Inglis jnr, one of the country's leading Russian timber importers. An Aberdonian timber merchant, Hugh Gordon told Baxter:

> I have made the proper enquiry amongst our wrights of the quality of Petersburg deals, and am told they are very good and very clean red wood... the best kind of them are said to be the cleanest and freeist of knots of any wood that comes here.[7]

In 1776 Baxter ordered a cargo of Russian timber through Francis Leys, another Aberdonian merchant. The vessel's arrival was recorded in the Inverness Precinct's quarterly port book as follows;

30th Oct. Erskine of Alloa, capt Jn Nicol, from Petersburg.[8]

11.2.0	deals	(g.h.)
1.3.0	cuts of deals =	0.2.10. deals (g.h.)
14.1.0.	battens	(g.h.)

However, the building accounts of Gordon Castle provide a far more detailed breakdown of the Erskine's cargo;[9]

1276	pieces	plank	2½"	thick	making	17,429 ft @ 2^{10}/12d	per ft	£205.15.2.
569	"	deals	2"	"	"	10,559 ft @ 2^{10}/12d	" "	102.13.2.
643	"	"	1½"	"	"	11,230 ft @ 1^{10}/12d	" "	85.15.8.
844	"	"	1½"	"	"	14,194 ft @ 1^{6}/12d	" "	88.14.3.
1177	"	battens	1¼"	"	"	19,995 ft @ 1^{3}/12d	" "	103.18.7.

A comparison between these two sources of information highlights several important features; the Erskine's port book entry of 3,160 pieces of deals and battens is substantially lower than the actual cargo manifest which lists 4,509 pieces - only 70 per cent of the cargo was recorded by customs. However, smuggling,in the form of under-entry to avoid customs duties, was unlikely to make any difference for comparisons between the Inspector-General's returns for Norway Sweden and Russia. A more important factor in any attempt to evaluate the relative importance of Russian timber imports is the size and cost of the Erskine's cargo; the pieces of deal and plank average 16 feet in length and £17.8/- in price (per great hundred). Quite apart from their superior quality the longer length of Russian imports compared to their Norwegian and Swedish counterparts seriously affected their relative value. Unfortunately, the Inspector-General's reports not only virtually ignore size because of the wide perameters used, but also record every entry under an 'official' price of £3 to £15, that is, an average of £9 per great hundred regardless of quality or size. In fact, in the same year that Baxter imported Russian deals averaging £17.8/- per great hundred he also purchased cargoes from Gothenburg and Bergen; the former cost only £9 per great hundred and the latter only £5.[10] Yet in the annual Scottish import totals these three cargoes are treated as identical they are simply imported deals within the wide perameters of 8ft to 20ft in size and £3 to £15 in value.

Fortunately, the Inspector-General's reports do provide one answer to the question of the relative values of deal and batten imports from various countries. In 1798 the British government began to apply charges to help meet the cost of naval convoy protection, based on merchants' declarations of the value of the goods imported (Act 38 Geo 3 Cap 76).[11] This information is first recorded in the Scottish report for 1800. Alongside the regular 'official' value, unchanged since 1755, the report also gives

a'declared'value; the recorded Russian import of 429 great hundreds of deals was given an 'official' value of approximately £3,864 using the average of £9. However, the total 'declared' value is £11,355, that is, almost three times the 'official' value and an average cost per great hundred of £26.9/-. By contrast, the 'declared' value for the 569 great hundreds of deals imported from Sweden was only £6,242 that is, only an average cost of £11. The 1,777 great hundreds of deals imported from Norway were given an 'declared' value of only £18,809 or an average per great hundred of £10.12/-. To some extent this situation, with a 'recorded' great hundred of Russian deals worth more than double the equivalent import from Norway and Sweden, was the end result of a general trend in the Scottish timber trade from 1765 onwards, but more particularly from 1792 until the end of the century. This movement saw imported deals and battens from Russia commanding a growing proportion of the top end of the Scottish market where merchants demanded longer sizes of cut and better quality wood. Also, the high cost of deal imports owed much to the rapid rise in freight rates and import duty after the outbreak of war in 1792. Nevertheless, in comparing the annual import figures for Russian cut softwood timber with rival sources of supply a doubling of the recorded figures probably gives a better estimation of the true importance of Russian deals and battens on the Scottish market. This would mean that Russian imports had surpassed Swedish deals and battens in importance by the early 1770's, and that for the decade 1785 to 1795 Russian supplies may have led the field- political and economic pressures after 1795 then saw a resurgence in Norwegian timber imports.

The development of Scottish trade with Russia during the latter part of the Eighteenth century, particularly the importation of raw materials such as flax, hemp and iron, was of primary importance in the rapid industrial and commercial expansion of the Scottish economy. Within Scottish - Russian trade in general, and the growth of cut timber imports in particular, the importance of ships captains was paramount.

Obviously the primary concern of any captain involved in trade between Scotland and Russia was the safety and guidance of his vessel on a sea-journey of some considerable danger; two excerpts from the letter-books

of Hunter and Smith, a small Edinburgh firm of import merchants engaged in this trade, highlight just this:

> the season is not to be trifled with and the risk immense . . . it is a ticklish passage down the Baltic at this time of the year but the experienced sailors here do not think there is any chance of the Duke of Atholl being hurt by frost.[12]

In fact, an important reason for the collapse of this firm in 1782 was the damage incurred by one of their freighted vessels and its cargo during a winter voyage to St Petersburg. Another ship's captain, Thomas Nairne of the Tagus, was drowned in Oct 1799 when his vessel ran aground at Elsinore - the Tagus sailed regularly between Riga and Dundee.[13]

Ralph Davis has written about the influence of shipmasters in the English - Russian trade that many masters managed their ships with little control from their owners, and had a high status.[14] A similar situation occurred in Scotland where captains were usually part owners of their vessels; for example, Thomas Nairne was paid a wage of £4 per month as captain of the Tagus but also held 27 of the 32 shares in a vessel sold quickly in 1799 for £780.

The growing importance of shipmasters within this trade can be partly explained by the form of goods carried; few voyages from Russia were undertaken for one merchant, rather parcels of goods were carried for several merchants, and the captain was responsible for ensuring that each merchant paid the going freight rate for these goods. One illustration of the importance of such negotiations over freight rates is the amount of time taken over them in the letter books of importing merchants such as James Inglis jnr or Hunter and Smith. Part of the problem was not simply the availability of vessels, or the increased risk of privateers during wartime, but also the captains themselves - they were tough negotiators and drove a hard bargain, often acting in concert together to push up freight rates. In 1777 Hunter and Smith informed a customer, the Paisley firm Maxwell and Bisland, that various ships captains were asking £5 per great hundred to freight deals from St Petersburg to Greenock as that was the rate in 1776 for shipments to Liverpool:

> but as the merchants in general seem inclined to keep off 'til they come to reasonable terms we hope they will soon see the impropriety of insisting on their enormous demands and be obliged to succumb.[15]

Again in 1778 the threat of French privateers was such that Hunter and Smith had to admit that, 'we can apprehend no offer that can be made will tempt Masters to undertake the voyage'.[17] The following year more attractive rates elsewhere meant that:

> owing to the high price of coals at London the shipmasters would not hear of an East country freight.[18]

Although the trade between Scotland and Russia was conducted by merchant importers in Scotland in correspondence with Merchant Houses in St Petersburg (and often between fellow nationals) the captain still had many onerous duties in Russia; goods may have been pre-paid and ordered, but the captain had to ensure that the correct quantity and quality of goods were loaded onto his vessel, as well as dealing with, and if possible circumventing the labryinthine Russian customs service. Again the actual correspondence between merchants and skippers involved in the trade provides the best possible examples of the duties carried out by shipmasters:

> we wish to have a master that is acquainted with the port of loading as on that depends in a great measure the quality of his cargo.[19]

> we beg you'll give particular attention to the quality of the deals as you must be sensible that the freight and duty constitutes the greatest part of the value of deals.[20]

> the greatest matters is to be on good terms with the Salvanie and soldiers that is on board giving them now and again 10 or 20 copecks as a present, and a dram is of great service to preserve you in their goods graces.[21]

One of the finest illustrations of the enormous duties and responsibilities undertaken by captains of vessels engaged in trade with Russia is provided by Hunter and Smith in 1777. Due to a severe shortage of suitable vessels the Edinburgh firm were forced to employ Captain James Currie of the Janet who had never sailed to St Petersburg before,

and so their instructions were particularly detailed:

> You had better go to town immediately upon arrival and consult with your merchant whether it will be most for your own and our interest that you go to town or not. That is, whether the additional port charges that would be incurred in the event of your going to town will exceed the saving on the lighterage in case you load at Cronstadt. Mr Glen will give you advice anent this as will Messrs Shairp and co. We must require that you'll be careful in picking the dealls of the best quality and free of rotts, shakes sap and blue wood. You have a specification of dealls annexed which will direct you in the kinds you are to take. It will be necessary when you report your vessel at the Brokers to give her 20 to 30 tons under her real burden for two reasons; first that perhaps no dealls may be allowed on the priviledge and secondly even when allowed they are at least 40 per cent dearer than those that are shipt with iron. The person you deal with at the deal yard will instruct you in this matter or any shipmaster of your acquaintance. We would by all means recommend your buying your deals from Mr.Glen's clerk Vasily Igeroff and you must now and then be giving 10 or 20 copecks to the Salaveinars and soldier to keep them from telling either of what things you take ashore or what deals you bring on board more than you enter and when you are loaded you must give or make the clerk at the deal yard give the Salvanie a note corresponding to the quantity of iron you have on board. This is given to the broker and your pass is made out accordingly.[22]

The duties and responsibilities undertaken by captains in the trade with Russia were enhanced by the decline in the use of supercargoes. As trade with Russia expanded in the years after 1763 the duties formerly undertaken by these men became the sole responsibility of the ship's captain. Indeed, in 1772 James Inglis jnr used the threat of introducing a supercargo to insult a captain.[23] During the six years they were in business Hunter and Smith only twice sent members of the firm on a voyage to St Petersburg; in 1776 when they started in business Thomas Smith sailed

there to establish a personal link with merchants in the St Petersburg community, and in 1780 James Inglis jnr's son went to complete the terms of his apprenticeship indenture - it is a measure of the relative importance of the Russian trade that a trip there, or to the West Indies, was included in a young merchant's apprenticeship papers.[24]

A close relationship developed between merchants such as Hunter and Smith and the captain's of vessels they regularly employed, having found an able reliable skipper they were loath to turn elsewhere. In 1777 they told Captain Spittal who sought employment:

> we would on account of old acquaintance and a confidence we have in your knowledge of the trade give you preference to any other.[25]

Similarly, in 1775 James Inglis Jnr wrote to Captain John Tullock of Inverkeithing who was in London buying a new vessel that:

> I have engaged no vessels to Petersburg yet awaiting agreeable to my promise in expectation of hearing from you. I will give you freight either from hence or from Memel to discharge in the Firth of Forth at current prices. Freight from Memel is 17/- per load, deals from Petersburg at 52/- per hundred, but you'll know these things as well as myself, say your lowest thou' I never mean to give you less than your neighbours ask.[26]

Sentiment, however, had little place in what was essentially a business relationship; Scottish merchants often attracted ships captains by allowing them to carry goods on their behalf. At this time the Scottish export trade to Russia was of little importance; normally vessels sailed to Russia in ballast, but some ships broke their journey by carrying cargoes to other ports before proceeding to Russia. For example, each year several Scottish ships engaged in the Russian import trade began their journey by carrying cargoes of Swedish herrings from Gothenburg into the Baltic. Again, in 1775 Captain Robert Hart of Bo'ness refused to bring goods from St Petersburg to Leith for James Inglis jnr - unless he was first allowed to carry a cargo of coals to Campvere in Holland on his own account.[27]

The right of Scottish sea-captains to carry some cargo as a business venture of their own is of particular interest in a study of cut timber imports from Russia as it appears that a substantial proportion of the trade was conducted in this way. Moreover, this form of trade provides a useful parallel with Scottish barrel stave imports from the United States:

these were stowed between tobacco bales, again on the captain's own account.[28]

Two distinct types of business co-existed within the Scottish timber trade with Russia; the first form of trade was 'regular', that is, it was carried out in the same manner as the more important trade in goods such as hemp flax and iron. Scottish importing merchants supplied regular customers for these goods by placing orders with St Petersburg merchant houses, and paid for these goods, well in advance of collection and delivery, by bills of exchange. This was a form of Russian timber trade which the firm of Hunter and Smith was formed expressly to participate in - indeed their main supplier in St Petersburg, Shairp and co. held a contract from the Russian government to provide timber for the export trade.[29] By contrast, an 'irregular' form of trade developed in which cargoes of deals and battens were purchased for cash in the St Petersburg deal yard by Scottish captains and used to fill up any empty space on deck or in the hold - after the regular cargo was loaded. This timber was then sold by the captain to an importing merchant on his arrival in Leith or Bo'ness.

The level of demand for Russian timber in Scotland was not substantial enough to support merchants selling only this one product; Hunter and Smith, for example, supported their ventures in the Russian timber trade with the profits from their retail wine sales. James Inglis jnr pointed this out when he wrote that:

> deals you know when imported from Petersburg come exceedingly high, unless a proportion are shipped with iron and as no retail trade in this place could enable any person to order such a quantity as would make the deals imported come anything reasonable the only way that can be done is by contracting with some of the manufacturing companies here in Scotland such as Carron co. or Murdoch Hudson and co. at Dalnottar.[30]

As the market for Russian timber was small compared to the demand for flax and iron importing merchants took less interest in it. Even merchants such as Inglis or Hunter and Smith who were all heavily involved in Scotland's timber trade took an offhand attitude towards shipments of Russian deals and battens; their letter books are scattered

with references such as, 'the remainder deals upon the master's account', and 'the cargo made up of deals', and 'in case the captain is obliged to fill up with deals', and yet references to loads of more expensive and profitable goods are always precise. It is difficult to reconcile this attitude with the stress which merchants put on ensuring the quality of deals or with the fact that Hunter and Smith were prepared to accept a loss on bar-iron to ensure deal supplies from Russia (see p.119). It may be that Scottish merchants appeared offhand because they knew that they would have no difficulty in selling whatever amount of deals their captains brought.

One case taken before the House of Lords in 1794 illustrates both the relative lack of importance of imports of deals and battens within trade with Russia in general, and also the role of ships captains as importers of timber in their own right. Throughout the latter part of the Eighteenth century John Jamieson was one of the most important Russian traders in Scotland. In June 1780 Hunter and Smith wrote to John Wilson, an Alloa shipmaster;

> we agree to give you the current freight to this port, or what may be given by Messrs James Pillans and co., John Jamieson and co. and William Sibbald and co. - upon whose terms freights from St Petersburg are generally established.[31]

The following quotation is drawn from evidence presented to the House of Lords in a dispute between Jamieson and John Laurie, a shipowner, over a cargo of tallow and iron carried from St Petersburg by the Bell of Leith in 1787:

> The tallow was their principal object in sending to the Baltic, though it did not complete the lading, and the shipmaster was provisionally allowed to bring home forty tons of iron, and fifty or sixty tons of goods; and, if wanted, he might also ship a quantity of deals and battens for the appellants. About these last, however, from the terms in which they are mentioned it is very plain that the appellants were indifferent; and the order was given with no view but that the cargo should be complete.[32]

Another example emphasises the almost haphazard manner in which many Russian deals and battens reached the Scottish market; in 1774 James Inglis Jnr. complained to Charles Best, the London agent of a St. Petersburg merchant house, after they had failed to load two ships which Inglis had freighted:

> I ordered both Captains Scougal and Fraser to apply for the goods I had ordered without any limitations on freight which they accordingly did but was answered that your Mr Laing had none. In short they were obliged to fill up with deals for want of goods on freight.[33]

In fact, these two unorthodox cargoes of deals were the second and third largest landed in the Leith Precinct during 1774.

Deals and battens were relatively unimportant within the Russian-Scottish trade in general; for example, in 1790 Scotland imported goods from Russia with an Official value of £309,739. Of this 3,550 tons of flax cost £159,751; 1,877 tons of tallow cost £51,630; 40,802 cwt of hemp cost £34,682 and 1,664 tons of bar-iron cost £16,641. However, the Official value of softwood timber was only £8,081.

Nevertheless, Russian deals and battens were a significant feature of the Scottish timber trade, especially in the port of Leith. Table 19 shows that by 1769, only five years after their arrival on notable scale, Russia dominated the Leith market, sending 325 great hundred deals while Norway and Sweden provided 123 and 38 great hundred deals respectively. However, tables 4 to 7 which show the various sources of deal imports into every Scottish Customs Precinct in 1765, 1775, 1785 and 1795, indicate that Russian deals only had a significant impact within the Leith market - at least until the last two decades of the century when imports to the Bo'ness Precinct expanded. At times, Russian deals were shipped coastwise from Leith to other parts of Scotland, but this incurred a double freight and was very expensive.[34]

While Leith dominated Scotland as a market for Russian deals the port of St. Petersburg was of paramount importance as a source of deals from Russia. For example, in 1785 56 vessels (all British) brought timber cargoes

to Scotland from Russia. Of this figure 7 ships from Riga brought Fir timber; 5 vessels brought deals from the White Sea ports of Archangel and Onega; Narva and Wyburg sent 3 and 4 vessels respectively, but 37 ships carried deals from St Petersburg. According to the Danish Sound Toll figures St Petersburg was the source of 516 great hundred deals and planks (similar to deals but wider), while 131 great hundred came from Wyburg and 196 great hundred from Narva. Wyburg peaked as a source of planks and deals in 1784 when 9 vessels carried 797 great hundred, and Narva peaked in 1792 when 16 vessels brought 510 great hundred pieces. However, between 1784 and 1795 St Petersburg's share of Baltic Russia's cut timber exports to Scotland never fell lower than 54 per cent.[35]

The growing importance of imports of Russian deals and battens into Scotland in the latter half of the eighteenth century was heavily influenced by a variety of government regulations imposed, not only by Britain and Russia, but also by Sweden, whose deals and battens were in direct competition with Russia's in the Scottish market.

British government regulations helped to promote the import of Russian cut timber into Scotland, because of the manner in which import duties were charged. As we have seen the duties on deals were levied, not on cubic measurement, but on the great hundred of 120 pieces, irrespective of quality or variations in size. At this time depleted resources made it increasingly difficult for the Scandanavian ports to supply longer lengths of timber: Gothenburg, for example, specialised in deals of 11 to 12 feet in length, while in Norway only the port of Fredrickshald could provide deals of over 14 feet. By contrast Russian deals were not only available up to the 20 feet limit for regular duty, but were also usually 11 inches wide - their Scandanavian rivals were only 9 inches wide.

Unfortunately, because of the wide perameters used in the Inspector-General's reports, it is not possible to provide a detailed analysis of the length of imported Russian deals and battens. However, some idea of this is given in the cargo manifests of individual vessels such as the Erskine, where the loading of 4,509 pieces of Russian planks deals and battens averaged over 16 feet in length.[36] A more general picture of the superior length of Scotland's Russian imports is provided by the Varerregister of the Danish Sound Tolls; this lists timber cargoes passing through the Sound by length. Moreover, this source also makes

it clear that different lengths of Russian timber were more popular in certain ports than in others. For example, in 1784 the port of Grangemouth imported 182 great hundred of Russian deals 14 feet in length, but the port of Leith only imported 39 great hundred deals of that length. However, Leith also imported 143 great hundred deals of 15 to 20 feet in length and 41 great hundred deals of 20 feet long, but Grangemouth's only other import of Russian deals in longer sizes was 42 great hundred deals between 15 to 20 feet in length. [37]

It is a measure (sic) of the importance of relative size in promoting the import of Russian deals into Scotland rather than their smaller Scandanavian counterparts, and indeed of the growing importance of the Russian product in general, that the St Petersburg Standard (120 pieces measuring 1½" x 11" x 12' or 165 cubic feet) became the most widely used measure for sawnwood. As a standard measure the St Petersburg eclipsed the old Norwegian measures such as the Christiania Standard, (103 1/8 cubic feet), the Drammen Standard, 121 7/8 cubic feet), and Swedish measures like the Gothenburg Standard, (229 1/6 cubic feet).[38]

The following table lists the British import duty charged on the great hundred of deals measuring up to 3½in. in thickness, from 7 to 11 in. in width, and from 8 to 20 ft. in length.[39]

1755 - £1. 8.7½d
1757 - £1. 10/-
1787 - £2. 13/-
1795 - £3. 19/6d
1796 - £4. 3/6d
1797 - £4. 7/6d

The import duty on deals remained stable until 1787 when Pitt introduced his Consolidation Act, and then at the end of the century there were several increases to meet the rising cost of convoy protection during the French Revolutionary Wars. It has been suggested that British import duties, described as 'nominal and unchanged' for much of the period, had little effect on the pattern of the timber trade. [40] This belief is based upon statements made in the major source of information on the British timber trade, the Parliamentary Paper on Timber Duties (1835).[41]

However, it must be remembered that after 1809 British policy on import duties for timber changed from fiscal to strategic. The level of duty was rapidly increased to foster alternative colonial sources of softwood timber to the exclusion of established suppliers. Timber merchants such as Henry Warburton gave their subjective opinions at a time when import duties on deals had risen as high as £22 in 1821. Obviously, at that time previous levels of duty may indeed have appeared 'nominal and unchanged'. H.S.K. Kent, the author of a study of the mid-eighteenth century timber trade in England has been severely criticised by Ralph Davis for similar uncritical use of this source.[42]

Finally, it should be noted that within the British import duties, unlike Sweden, there was very little discrimination against cargoes of timber carried in foreign vessels; in 1755 the Aliens Duty amounted to only 1/3d per great hundred deals.[43]

The prominant position of Swedish cut timber deals and battens in the Scottish timber market of the mid eighteenth century owed much to the attitudes and policies of the Swedish government. The rapid rise in imports from Sweden, especially the west coast port of Gothenburg was directly related to the Royal Letter of 1739 which allowed the introduction of fine-blade sawmills. Until this point the manufacture of wood products was discouraged for the benefit of Sweden's ironworks, which were major consumers of charcoal and the darling of the authorities. Moreover, sawmill commissions were organised, ostensibly to balance the various demands on the forests but above all interfering to secure the timber needs of the smelting industry.[44] However, this more liberal attitude in the post -1739 period was limited; the export of timber from Baltic Sweden was discouraged by an ordinance requiring that shipment be confined to Swedish vessels - perhaps this was a major reason for the almost complete dominance of Gothenburg in Scottish trade with Sweden.

As we will see deal and batten imports from Russia benefited from a Russian government regulation which linked them to more important iron shipments. A similar system operated in Sweden but no specific ratio of timber to iron was established; as one Scots merchant in Gothenburg pointed out:

> no quantity of deals is limited to the iron, but every vessel has the liberty to take in so many deals as she can carry

provided she have iron for ballast.[45]

A comparison between the policies of Russia and Sweden is important because after the arrival of Russian timber imports in Scotland from the mid-1760's onwards Swedish timber imports stagnated. The two sources were in direct competition on the Scottish timber market; this is suggested, not only by the annual import figures recorded in the Inspector-General's reports (see also Graph 2), but by indirect evidence: in 1764, the year before substantial imports of Russian deals began to arrive in Scotland this letter was sent by Carron Co. to the London office of the St Petersburg merchant house of Watson and Co:

> Your House in Petersburg sometime since advised us in case we were at a loss for freight that it would be in our best interest to freight ships and fill them up with deals. We do not ourselves import this article but our freinds Messrs Wm Caddell and sons, merchants in Cockenzie import considerable quantities of deals and bar-iron from Sweden and if the quality and prices are encouraging they may change the channel of their importation. For their acccount we now trouble you to advise the quality, sizes and prices of the deals and fir balks exported from Petersburg and the neighbourhood. With the last article they have been hitherto principally supplied from Riga. Though the prices at Onega are much cheaper.[46]

While a change in the Swedish government's policy towards timber had encouraged exports to Scotland after 1739 another policy, regulating shipping in general, proved a more severe problem when Swedish timber began to encounter competition in the mid-1760's; from the early part of the century Sweden had attempted to develop her merchant navy by imposing heavy export duties which discriminated against foreign vessels. However, the Inspector-General's reports show that the Swedish fleet made little inroad into Scottish/Swedish trade - except during wartime. For example, in 1760 the Duke of Argyll imported a cargo of deals and battens from Gothenburg in the Swedish vessel Young Tobias; George Carnegie, the Scots merchant in Gothenburg who organised the shipment informed the Duke:

> the freight on Swedish ships have been high for some time past on account of Prussian privateers, but the duties here are much lower than in British ships.[47]

The result of this substantial difference in duties was that merchants operating in the Swedish trade provided customers in Scotland with different price lists depending on the nationality of vessel they intended to use. This list was issued in 1772 by James Carnegie-Arbuthnott in Gothenburg for Thomas Christie, Provost of Montrose:

	Swedish vessels	British vessels
120 deals 12 ft x 9 in x 2½ in best	£6.10	£7. 5
" " " " wrack(seconds)	4. 9	5. 5.
" " " 1 in best	3.16	4. 4.
" " " " wrack	2.10	2.18.
" battens " 2½ in	4.16	5. 5.
" " " 1 in	2. 7.	2.11. [48]

The Swedish merchant fleet's failure to make a serious impact upon shipping between Scotland and Sweden meant this government policy amounted to little more than a surcharge on Swedish timber imports - and a liability in its competition with imports from Russia.

In 1774 the Edinburgh timber importer James Inglis jnr wrote that 'the Baltic plank cuts out the Norway deal'. [49] In fact, because they provided mixed timber cargoes, including deals, balks spars and other wooden products, the Norwegians were able to survive in the face of growing competition from Russian imports. However, Swedish deals and battens, like Russian, usually arrived as a supplementary cargo with iron imports: the two competed directly, and Swedish deals were soon forced out of the Edinburgh market - a fact made plain by the returns for the Leith Customs Precinct.

Not only was there stagnation in the level of Swedish deal and batten exports to Scotland, but also the quality of timber declined as the Russian product captured the upper end of the market; in 1775 Inglis noted:

> Gothenburg for several years past has fallen in quality though I think the nature of the timber superior to any other port if they can be got good.[50]

The problem was not Sweden's inability to provide high quality timber, but the price of imports compared to their Russian rivals - a price

further inflated by British import duties which discriminated against smaller lengths of deals.

The problems encountered by Swedish imports were not limited to Edinburgh; in 1773 Cruickshanks, the Aberdeen importers, told James Carnegie-Arbuthnott in Gothenburg why they had stopped buying his goods:

> this was principally occasioned by the difference in the price of iron and deals with you and what we have from Russia.. we are persuaded your place suffered by the high price they brought iron and deals to which obliged people to try about for another market.[51]

As competition increased between Russian and Swedish deals Scottish merchants began to show a preference for Swedish 'wracks' or seconds when they had to import Swedish timber. The result of the duties imposed upon deals by the British and Swedish governments was a rapid decline in both the level and quality of deals and battens imported from Sweden; a situation provoked by problems well summarized in these two letters from Provost Christie to Carnegie-Arbuthnott:

> it is but little wood he can take in, and the less the better for excepting if it be particularly well choosed we have always been losers by it - by no means send us single deals as they are the same as double deals 19 ft long.[52]

> with respect to the wood (as no favours are granted here) it must be all of the thick kind and of that sort you call best wracks - as the fine kinds here will not fetch the price. We would be much obliged to you to be at particular pains in the choice of the wood and to get it as good of that sort as you possibly can. In general we have lost money by the wood imported here from your place - excepting the last parcel which Mr.Johnson shipt, being 2½ inch wrack these indeed made a handsome profit by and entirely owing to their being well chosen and better in quality than these we usually had before. Should you see a good pennyworth of thick Finland deals, deals 11 to 12 inches broad - or longer so as to be under 20 ft and not to come proportionally higher than 2½ in wrack deals you may send us some of these as the duty is all the same.[53]

In 'Northern European timber exports, 1760-1810' Sven-Eric Astrom pointed out the seeming anomaly between liberal Sweden which kept timber exports down by means of regulative policies, and authoritarian Russia which practised a liberal industrial and trade policy.[54]

In fact, some aspects of the Russian government's trade policy were far from liberal; heavy protectionist duties were levied on foreign imports to foster Russian industry and check the growing influx of luxury and consumer goods. By contrast, Russia recognised the importance of exports as a source of government revenue; low tariffs were maintained to encourage the sale of primary products such as flax, hemp, bar-iron and timber.[55] It has been suggested that Scottish traders, particularly in the early 18th century, were daunted by awkward Russian port regulations, especially the practise of stationing an officer onboard; from the correspondence of Messrs. Hunter and Smith in 1776 it is obvious that this, and any other difficulty could be dealt with in St. Petersburg where corruption was rife:

> The clerks at the deal yard too are very susceptible to corruption and like a bottle of gin or brandy with all their hearts.[56]

The Russian government was also directly involved in promoting the development of softwood timber exports; the Onega forest monopoly, sold to the English merchant Arnold Gomm in 1760, has been described as one of the largest commercial enterprises undertaken to develop the export of forest products from Russia.[57] However, perhaps the most important manner in which Russian government policy encouraged the timber trade was by linking it to the burgeoning bar-iron trade.

Scottish merchants could purchase deals and battens from St. Petersburg in two ways, either with or without bar-iron. Both forms of export were known as a privilege, and were granted by the Russian government. Firstly, deal and batten exports were allowed in ratio to the amount of bar-iron a vessel was carrying. This ratio recognised the close relationship which existed between the two cargoes; timber provided packing and ballast for vessels carrying bar-iron, but it also acted as a restraint on the level of timber exports - it was imposed at the behest of

influential Russian iron producers who feared over-exploitation of the source of their charcoal.[58]

In 1765, the year in which Scotland began large-scale imports of Russian timber, Carron Co. informed the St Petersburg merchant William Watson that:

> we observe 600 (5 great hundred) 1½ inch deals are allowed to be exported with every 1000 poods of iron- we may probably try an assorted cargo of both in the spring.[59]

The Russian pood weighed approximately 36 pounds giving a ratio of one standard great hundred deals per 3.2tons. In 1790 the government reduced the ratio, allowing one great hundred deals per 3.52 tons of bar-iron carried. The reason behind this alteration is explained by Scrivenor in his History of the Iron Trade:

> in consequence of a fall in the price of wood, a new regulation was made, partly through the influence of the iron proprietors, who maintained that, if the English must have deals, they ought to be proportioned to the quantity of iron they load, which was, therefore, regulated at 284 standard dozen of white wood deals, for every 100 tons of iron.[60]

In 1798, with what is certainly the most dramatic example of government influence over the timber trade, Russian iron producers obtained an ukase which banned all exports of timber. However, this was repealed a year later as it actually raised the price of Russian exports of bar-iron; as merchants were unable to get deals to complete ships loadings they were obliged to pay additional freight.[61]

Given the less than harmonious diplomatic relationship between Great Britain and Russia in the latter part of the 18th century the bar-iron/timber linkage could often assume a primary role in assuring Scottish supplies of Russian timber; in 1777, for example, one Scottish importer wrote his St Petersburg connections that:

> for iron it will be proper and indeed indispensably necessary that you keep it for our bottoms without which deals from St Petersburg cannot be got as the privilege by the Empress and Senate for the exportation of deals sans iron is now expired.[62]

However, instances such as this provided only an irregular incentive for Scottish merchants to link cargoes of iron and timber together; a far more important reason for the linkage was that when timber was exported without iron - a form which was also known as a 'privilege' - it was far more expensive. In 1777 Hunter and Smith estimated that deals exported alone upon the privilege were, 'at least 40 per cent dearer than those that are shipt with iron.' [63] The general situation was well summarised by Hunter and Smith in 1775 in a letter to the London agent of the St Petersburg house of Shairpe and Maude:

> deals you know when imported from St Petersburg come exceedingly high, unless a proportion are shipped with iron and as no retail trade in this place could enable any person to order such a quantity as would make the deals imported come anything reasonable the only way that can be done is by contracting with some of the manufacturing companies here in Scotland such as Carron Co. or Murdoch Hudson and Co. at Dalnottar near Glasgow. We ourselves could engage for 50 to 80 tons, but as our stock, though solid, is not extensive we could not venture to undertake for more than we could honour and safely to ourselves and justice to our friends accomplish. More especially as in cases of this nature the advance is long and considerable. These companies always taking 6,9 or 12 months credit.
>
> It is a thing not uncommon for merchants in London concerned in the Russia trade to contract with these companies for the delivery of iron here; and if you could make such engagements with profit to yourselves and entrust the consignments to our care we dare say we should acquite ourselves to your satisfaction.[64]

It seems that both English and Scottish timber merchants were prepared to accept losses on Russian bar-iron imports to ensure their timber could be purchased on the privilege; in 1776 Hunter and Smith made the following offer to Murdoch Hudson and co.:

> as we very much want to have a cargo of deals to your port if the above offer £11.6/- per ton) can serve you anything, you are exceedingly welcome to it, on condition you give us the privilege of importing the deals. As these gentleman seem to think the exchange will be higher at the end of the season and

> if it should be 4/- per rouble supposing iron at 81 copecks per pood (which is a very low calculation) it will cost us £11.10/- per ton.[65]

That same year Hunter and Smith noted that English timber importers who had contracted to supply both Carron and Dalnottar with iron stood to loose £1 per ton, because of a rise in freight rates later in the shipping season.In 1780 Hunter and Smith again found themselves in a similar situation; they had agreed to supply Dalnottar with 60 tons of bar-iron from Russia,however, because of the high price of coal in London that year no shipping was available. Shipowners clearly preferred the safe, and profitable, coastal trip rather than a voyage up the Baltic, with privateers a severe threat. One of Edinburgh's largest merchant importers, Scarth and Pillans, had managed to freight two vessels and Hunter commented:

> Scarth assures me they have engaged two vessels at these prices, and only 10/- to 10/6d for iron, but I would give up to 15/- rather than want one - as that would only subject us to a loss of £12.10/-(on 60 tons of iron), which I am convinced is much less than we would be found liable in the event of an action for damages.[66]

Obviously, in the years when demand for Russian timber was high the close relationship with bar-iron imports worked to the advantage of Scotland's ironmasters: the letter books of Carron Co. contain a litany of requests from importing merchants for their custom.[67] However, the roles could be reversed; in periods such as 1773-4 when building work on Edinburgh's New Town ground to a halt following the financial crisis of 1772 timber importers held the whip hand. In May 1773 James Inglis jnr wrote that:

> there never was a time this twenty years that trade in general was so dull, the shipping in the river lies rotting for want of employment.[68]

He had just received a letter from Dalnottar offering him their contract to supply them with Russian bar-iron. Inglis simply refused the offer; he noted the depressed state of the timber trade in Scotland and also that:

> the quantity of deals that is otherwise necessary for your iron I am afraid would not sell but at a loss among your (Glasgow) Russia merchants who are by the by damned scoundrels.[69]

Finally, there was one form of government influence over Scottish timber imports from Russia which no single government promoted, but whose affect on the trade could be devastating. The cost of freight for Russian deals and battens was particularly important, because of the length of the voyage to Scotland - 1,290 nautical miles from St Petersburg, and so in time of war when privateers were rife the Russian trade suffered far more than Norwegian or Swedish imports, for example in 1782 the activities of privateers in the North Sea and the Baltic combined with a severe harvest failure in Scotland to produce the lowest import of Russian deal imports into Scotland (173. g.h.) since they began on a major scale in 1764.

In 1782 when Russian deal exports to Scotland collapsed the freight rate stood at 160/- per great hundred (St Petersburg standard). The cost of freight was an important component of the retail price of Russian deals; in 1773 Inglis sold the standard great hundred for £8.8/- and freight cost 60/- that is 36 per cent.

The cost of freight to Scotland for Russian deals fluctuated greatly, as the following table shows:

Freight rate from St Petersburg, per standard hundred.[70]

	Eastern Scotland	Western Scotland
1765	48/-	
1772	63/-	
1773	60/-	
1775	52/-	
1776	63 to 75/-	
1777	70/-	85 to 100/-
1780	80 to 90/-	
1781	100 to 160/-	
1782	160/-	

It was not the actual freight rate itself which was of importance, but its relation to retail prices. As we have seen, between 1760 and 1810 the importance of freight for Baltic timber was halved as retail prices rose faster than freight rates, so benefiting Russian timber compared to Norwegian and Swedish supplies. Given their obvious advantages with regard to quality, size and cost it is surprising that Russian deals did not take a greater share of Scotland's import of deals; according to the 'Declared values' of 1800 Russian deals and battens accounted for only 26 per cent of the cost of all Scotland's cut timber imports. That Russian supplies did not have a greater impact reflects the diversity of Scottish needs; Russian deals met the 'quality end' of the market-their growing importance actually marginalised Swedish deals, which declined in quality as Russian imports expanded. Combined with the growth of deal imports from eastern Norway it would appear that during the latter part of the eighteenth century Scotland became increasingly concerned with quality. However, proximity and the time factor restricted supplies from St Petersburg to a share of the cut timber market rather than dominance.

Footnotes.

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CHAPTER FOUR

THE SCOTTISH ALTERNATIVE

A study of Scotland's timber trade must also examine the role of Scotland's native resources in supplying the needs of the timber market; did Scotland's own timber stands, both natural and plantation, make any significant contribution to the nation's need for wood, or can we accept the level and pattern of import figures as an accurate reflection of the total demand for softwood timber in Scotland?

The most telling indictment of Scotland's own timber resources must be the very antiquity of the imported timber trade; this would suggest that demand outstripped supply at an early stage in the nation's economic history. As early as 1329 imported timber is recorded in the Exchequer Rolls of Scotland. Records of early imports run in tandem with legislation to preserve existing woodland and to encourage planting.[1] Evidence suggests that by the sixteenth century Scotland's own timber resources outwith the highland region were exhausted and the nation relied on imports to supply its timber needs.[2] This view is supported by the opinions expressed by early visitors to Scotland; in 1445 Aeneas Sylvius, the future Pope Pius II stated that Scotland was destitute of timber and he commented on the use of coal as fuel. Later, in 1617, Sir Anthony Weldon noted:

> As for trees... had christ been betrayed in this country(as doubtless he would have been, had he come here as a stranger) judas had sooner found the grace of repentance than a tree to hang himself on. [3]

Unfortunately, if we turn our attention to the eighteenth century it is clear that contemporary visitors fail to provide a unanimous opinion on either the actual or possible position of Scotland's timber resources; opinions as diverse as those of Edward Burt and John Spreull may be quoted, at the turn of the century Spreull wrote with heady optimism that:

> it cannot be believed by many that have not seen the woods, or timber of fir that is in the highlands; how large and how good, being mostly of red-wood, and not of a fresh bruckle nature, but teugh and durable... and how many woods are in the north highlands.

His opinion contrasts with Burt's observation that:

> one might ride for twenty miles over the hills without seeing a tree or coming within two miles of a shrub.[4]

Two witty and lyrical examples of the diverse opinions formed by visitors were provided by members of London's literary establishment; in 1726 Aaron Hill, a propagandist for the York Building Company put his optimistic view of Scotland's resources in poetic verse:

> Britain no more shall explore, from far,
> the costly magazines of naval war;
> high on the mountains of her northern shore
> the gummy pine shall shed her pitchy store,
> shall fright the seas, and visit world's unknown;
> till the check'd sons of Norway's timbered state
> learn love, by force, while we disarm their hate.[5]

By contrast, a minor controversy followed the publication of Samuel Johnson's 'Journey to the western islands of Scotland' (1775); during his trip Johnson made a series of comments and witticisms on Scotland's lack of trees, for example, ' a tree might be a show in Scotland as a horse in Venice.' [6] Many Scots took grave exception to the good doctor's remarks, and one, the Rev. Donald McNicol, actually published a reply. More recently an article has been published suggesting a serious philosophica concern behind Johnson's opinions.[7]

It may be important that when visitors to the highlands in the eighteenth century praised native timber resources an explicit comparison was often made, particularly with imported material from Norway; James Robertson (1767) while making a survey of the flora of the highlands for the Commissioners of the Forfeited Estates recorded that:

> in a glen at Dybdol and in Glenmore there is a considerable quantity of natural fir and birch, the fir is the finest I have seen in Scotland.. the timber of these trees is as red and good as any brought from Norway. [8]

Again, while surveying in the great glen for the Caledonian Canal Thomas Telford wrote that the quality of the timber was, 'finer and more durable than the best baltic timber.' [9]

To these men, experts both, imports were accepted as the status quo against which scottish timber might compete - if it was properly exploited.

Obviously, if we are to gauge the relative importance of Scotland's timber resources we cannot rely upon the varied subjective reports of men such as Dr Johnson and Aaron Hill. Fortunately a more precise measure of the true extent of Scottish woodland exists; Andrew O'Dell has used the Military Survey of Mainland Scotland produced between 1747 and 1754, commonly known as Roy's Map, to record both plantations and woodlands.[10] O'Dell believes Roy's Map shows an arboreal wealth in Scotland which was about to disappear; basically, plantations are shown in the Central Belt and up the East Coast, while woodlands are shown in scattered outcrops throughout the central Highlands. There is no suggestion of a vast unbroken forest, tree cover was sparse. In general terms Roy's Map shows tree cover of 2 to 3 per cent in the Lowlands and over 7 per cent in the Highlands.[11] This may be compared to the contemporary figure for Scotland of only 10 per cent - less than half the European average.[12] Curiously, the sparse scattered nature of Scotland's eighteenth century timber resources would reconcile such apparently diverse reports as Burt's and Telford's.

Too much reliance should not be placed on the precise extent of woodland recorded on Roy's Map; Graeme Whittington has recently shown Roy's Map to be rather less reliable than O'Dell imagined. Whittington believes that features on the Map, such as cultivated land and enclosures should be seen as symbolic statements and not indications of their true extent.[13] It must be noted that Roy's Map recorded all tree types, also we must question the importance of plantations as a source of timber. This study is concerned with what has been described as 'measurable timber' softwood timber balks and planks large enough to be used in the different forms of construction.[14] Production of timber for this purpose was only one of a variety of reasons why Scottish landowners established plantations. In judging the relative importance of plantations we meet a similar problem to that of Roy's recorded woodlands; just as Scots Pine was only one amongst several different species including hardwoods, so plantations

were established with a variety of tree types and purposes. Indeed, the principle motive for many plantations was aesthetic, with the planting of trees as a commercial asset probably a secondary motive. [15] Plantations fulfilled several purposes; shelter for enclosures or game, amenity and ornamentation, even when they did provide timber for building this was little more than the home demands of the improved estate. [16] Certainly, sales of plantation timber grew in the last decade of the eighteenth century as landowners took advantage of the rapid rise in timber prices, but this was often immature stock. M.L.Anderson believed that the market for home produced timber only developed in the early decades of the nineteenth century when the more extensive plantations of earlier years were becoming exploitable and when the rapid development of new turnpike roads in many parts opened up areas and improved access. [17] Above all, plantations were long-term multi-purpose investments which could probably do little to correct a situation decreed by nature.

The nature of Scotland's timber resources, in particular their irregular and limited distribution,was a direct result of the vagaries of the Scottish climate and the efforts of iron-age man. The legendary 'Caledonian Forest' or Boreal Coniferous Forest zone did exist, but that was 5 to 7,000 years ago, when Scotland enjoyed its optimum climate - the average summer temperature was 2^{o} C. higher than at present. This may not seem much, but a fall of 1^{o}C. in overall summer temperature restricts the growing season for plants by three or four weeks and reduces the maximum altitude at which crops will ripen by about 500 feet. By Roman times the twin pressures of man's impact on the landscape and a continuing climatic decline increasingly marginalised Scotland's native pinewoods. [18]

Historians remain divided on man's role and impact on Scottish woodlands; the more popular view cites eighteenth century Englishmen as the greatest agents of destruction. However, this view may be discounted; by that time tree cover was already sparse, the influence of climate was far more profound and set the perameters within which man's influence was felt. [19] For example, even today in an era of managed commercial forestry only 10 per cent of Scotland is wooded, and the U.K. imports 92 per cent of its annual timber requirements. [20] The Forestry Commission faces a

problem in attempting economic reafforestation, because the upper altitudinal limit on their plantations or 'planting line' is lower in Scotland than elsewhere in Europe. In the south and east the 'planting line' runs at 500 metres dropping to 300 metres in the north and north-west, and on particularly exposed sites lies as low as 200 metres or even sea-level.[21] Due to the great variety in Scotland's bio-climate, that is, landform, soil wind and rainfall Scotland divides into three distinct woodland areas with pine forest predominant only in the eastern and central Highlands.[22] Elsewhere it must compete, not only with other forms of land-use, but also with other varieties of trees.

While climate determined the limited extent of Scottish woodlands it also influenced the quality of timber available. Scotland's native conifer, the Scots Pine or Pinus Sylvestris, is found in many countries in a wide range of climate and soil.[23] However, to form a sound timber of slow growth the Scots Pine needs short hot summers and very cold winters. The tree grows at its best in Eastern Europe, east of the river Elbe and between 53 and 65 degrees north latitude.[24] Unfortunately, the Scottish climate is, comparatively, cool humid and temperate. This is a continuing problem today as home-grown softwoods still lack the strength and durability of their slow growing Scandanavian and Russian rivals.[25] The rate of annual growth in Scotland was, and is, simply too fast - at least twice that of Russia. Ironically, in Scotland the best quality pinewood was usually produced by rocky or hard soils - often in areas where it was difficult to extract and market.[26]

When he examined the question of the Royal Navy's supply of pinewood masts and spars in the eighteenth century, R.G. Albion noted the brittle nature of the Scottish product and wrote:

> It was because of this that England had to look beyond the seas for masts long before the oak shortage was even noticeable. Scotch masts were used only on occasions of severe necessity, and were always regarded as inferior.[27]

Pine masts and spars for shipping were the most sensitive items in terms of quality in the timber market, but the relatively poor quality of Scottish pinewood was a matter of common concern. For example writing

on the subject of house-building in Clackmannanshire in 1795 J.F. Erskine noted:

> For these thirty years past, the houses have been daily improving. They are built with stone and lime; and the windows are considerably larger, and most of them glazed. At first, home-fir of thirty or forty years growth, was generally used for the roofs, as it was sold for little more than half the price of foreign wood. Experience has proved that practise to be very unthrifty: for the workmanship in preparing the wood for use, was considerably more than what was necessary when foreign timber was used, made it but little cheaper; and not so nominally so, but the wood being so very young and unseasoned, it scarcely lasted 20 years, whereas foreign wood continued good for a century. [28]

In their study of Scotland's native pinewoods H.M. Steven and A. Carlisle provide information on the location of woodlands which closely parallels the evidence of Roy's Map. Although it may have been sparse scattered and often of poor quality these two sources suggest that Scotland had substantial pinewood resources centred in the following areas; Deeside, Speyside, Rannoch, the Great Glen, Strath Glass, Wester Ross, a northern group centred in Ross and Cromarty and a southern group east of Loch Linnhe.[29] From a more detailed examination of the first three of these areas it will become clear why attempts to market Scottish timber resources on a national scale failed, and why Scotland had to rely so heavily upon imported softwood timber.

The Black Wood of Rannoch on the shores of Loch Rannoch in Northern Perthshire had a long history of supplying the 'Country' or local demand for timber; as early as 1514 Rannoch timber was used in construction work in Dunkeld, 30 miles away.[30] However, heavy exploitation dates from the late 17th century when two particular incidents provide valuable insights into Rannoch's timber trade. In 1683 the owner of the Black Wood, Robertson of Struan, was in dispute with other local landowners, including the Duke of Atholl, and he took his case before the Privy Council.[31] Robertson wanted protection for his two Rannoch sawmills and for floating timber on the rivers Tummel and Tay. Robertson's evidence, and his claim

of an annual production figure of 7-8,000 deals, was doubted by the Council. Moreover, T.C. Smout has shown that even this level of production was small beer compared to sawmills in southern Norway. [32] What is more interesting than Robertson's dubious claims, however, is the nature of the dispute. Any attempt to use rivers to transport timber over longer distances, (and so market it on a wider scale), interfered with other river users, especially the fishing industry with its fixed nets and baskets.

This problem was not limited to Rannoch; a few years previously in 1675 local inhabitants at Meggernie in Glen Lyon broke the dam and burnt the sawmill when floating timber on the river Lyon damaged the fishings.[33]

The early 18th century was an unsettled period for the timber industry around Loch Rannoch; the owner of the Black Wood, Robertson of Struan, was out in both the 1715 and 1745 Jacobite Rebellions.[34] Indiscriminate felling removed the best and most accessible pinewood. At this time it has been suggested that Rannoch timber reached Perth, where it was used to build tenements, and Crieff for buildings in Commissioner Street.[35]

Between 1749 and 1784 the Black Wood of Rannoch was administered by the Commissioners of the Forfeited Estates. Their local officers took immediate action to establish sound commercial practices; annual felling was progressively reduced to encourage regeneration, and in 1758 new technology arrived with the building of a new water mill with frame saws. This followed adverse reports on the two existing mills near Loch Rannoch; although built in 1741 by 1755 they were described as, 'perhaps the most Gothick thing of their kind in the world, with saws $\frac{1}{4}$ inch thick.' [35]

In 1757 a more detailed report stated:

> The two sawmills at present are in very bad order, each having only one frame and one saw, each saw draught half an inch thick, which consumes a good deal of the best of the wood and the saws being too quickly fed, the deals are very rough sawn, and by the insufficiency of the moving frames, are very inequal cut in thickness, some deals two inch thick at one end and bare inch at

> the other which not only wastes a good deal of timber, but proves hard labour and a great drawback in working of it. The same strength of water that drives the thick saw at present will drive two if not three saws, of the common thickness used in Holland, Leith etc. [37]

Clearly, in parts of Scotland at least, sawmilling technology was many years behind developments in Scandanavia. However, from the 1740's onwards Scottish timber also had to compete with rapidly growing imports of balks of timber which were sawn and prepared for sale in Scottish ports.

A sawmill was operating in Leith as early as 1695 and another in Alloa by 1718. Evidence exists showing sawmills operating in Leith, Alloa and Montrose in the mid-eighteenth century; in 1762 in Perth, the very market Rannoch timber could hope to exploit, a sawmill was built to produce boards and deals from imported balks - it was stated by the owners that local grown timber was not half as strong or clean as foreign wood.[38]

Even the new sawmill did little to solve the problems of marketing timber from the Black Wood; access and transportation costs were a major difficulty for Highland timber in general, but for Rannoch their improvement proved a double-edged sword. For example, in 1766-7 a recently constructed road from Braemar to Blair Atholl had provided access to Perthshire for better quality Deeside timber, thereby destroying the local market for the Rannoch product.[39] Similarly, imported timber became more readily available, and in 1778 the miller at Rannoch argued that restrictions on felling imposed to encourage regeneration threatened him with the loss of his best customer, the Duke of Breadalbane, who would purchase imported timber at Perth instead.[40]

By the latter half of the 18th century it would appear that the combination of earlier overcropping improved supplies from elsewhere and the conservation policies implemented by the Commissioners of the Forfeited Estates effectively limited sales of Rannoch timber to the local market.

In 1769 Thomas Pennant wrote on the Black Wood of Rannoch that:

> the deal, which is of the red sort, is sold in plank to different parts of the country, carried on horses backs, for the trees are now grown so scarce as not to admit to exportation.[41]

Pennant's use of the term 'country' refers to the local rural district, not the nation. This view is confirmed by recent work by J.M.Lindsay. He has shown that in the period 1779-1781 the vast majority of sales of Rannoch timber were to places within a twenty mile radius of the sawmills.[42]

By the end of the 18th century the policies implemented by the Commissioners of the Forfeited Estates seem to have borne fruit; in 1798 Colonel Alexander Robertson of Struan took advantage of the rapid increase in timber prices to announce the following:

> A large quantity of full-grown trees of Scotch Fir, consisting of at least four hundred thousand, from 6in to 3ft in diameter, part of the extensive fir wood in the district of Perthshire called Rannoch, equal in quality to the best of that timber in Scotland and not inferior to any imported from foreign countries.
> There is access to the wood by good roads, and partly water carriage on Loch Rannoch, and at no great expense the timber might be floated by the River Tay to the Port of Perth; so that though this wood has hitherto been only used by means of sawmills on the spot for home consumpt, yet from its excellence and superior quality, purchasers to considerable extent might find it their interest to manufacture and transport it by sea to any part of Britain, as has been done with the fir wood of Glenmore, in Strathspey, belonging to the Duke of Gordon, for some years past.[43]

The new proprietors, Thomson and Smith, failed due to problems over accessibility and transportation, although they went to great lengths to overcome these difficulties. Canals were dug in the Black Wood with locks and basins in which the timber was floated and collected, and the larger trees were slid down a mile-long sluice to the loch, where they were bound into rafts and taken down the rivers Tummel and Tay. However,

the Tay itself presented problems and much of the timber by-passed its destination in Dundee and was carried out to the North Sea, ending up as far afield as Holland - a rather unsatisfactory export technique! [44]

The timber produced by the Black Wood of Rannoch had little impact on the national market for a variety of reasons; the poor quality of the timber itself, even by Scottish standards, was a major difficulty, but other faults included problems over access and transport, poor management prior to 1749 and technological backwardness. Whether these problems were specific to Rannoch alone, however, or if they form a more general indictment of Scottish forestry resources as a whole, remains to be seen.

As we have seen, the construction of a road between Braemar and Blair Atholl in 1766-7 allowed sales of timber from the Upper Deeside pine forests of Glentanar, Ballochbuie and Mar to reach as far south as Perthshire. Substantial evidence exists which suggests that the timber industry of Upper Deeside not only served a local market, but also, at times, supplied demand from further afield. In 1725 the local timber industry in Glentanar was outlined in the following description:

> The country is mountainous, not very fertile, the people living more by trafficking in timber than husbandry, this wood they have from the Wood of Glentanar, which lies on the southside of the said parish, and is the only ornament of the place. It is very large in extent, 10 to 12 miles in circumference, though not full in all places. The timber in this wood, which is all fir, grows to a great height and bigness, the whole country round being served in fir-timber out of it, to the considerable advantage of the Earl of Aboyne who is Heretour of it as he is all that parish. [45]

More detailed information on sales of timber was provided by Thomas Pennant in 1769 when he visited the forest of Invercauld by Mar:

> The value of the trees is considerable: Mr.Farquarson informed me that, by sawing them and retailing them, he has got for eight hundred trees five and twenty shillings each; they are sawed in an adjacent sawmill into planks ten feet long, eleven inches broad, and three thick and sold for two shillings a piece. [46]

Unfortunately, Pennant does not mention where the timber was sold. However, by comparison, in Edinburgh in 1773 top quality St. Petersburg planks of similar dimensions cost 2/3½d. [47] This would suggest that Invercauld timber reached an urban market, such as Aberdeen. As early as 1732 it was noted that:

> Glentanar fir was well known, of course, in Aberdeen, for it was more famous than even the fir woods of Ballochbuie and Invercauld and was more worked than they were by the people of the district. [48]

Again, in 1772 wood from Lord Fife's estate of Braemer, of the finest quality, was bought at 4d per cubic foot on the spot. After being floated down the Dee to Aberdeen it was sold in retail at 8d.[49] This was somewhat lower than the retail price of approximately 11d for imported Memel logs. [50]

The papers of the Earldom of Mar provide detailed information on two Deeside sawmills built in the forest of Mar in the 1720's; one built at Glenlui in Braemar and another nearby at Derry.[51] These sawmills were established as temporary short-term ventures to exploit a particular woodland area and market the timber locally.

In 1725 the Wood of Derry was estimated to contain only enough timber to keep a sawmill going for five to six years, or enough for a ten year agreement if put up for sale. The contract includes Mar's agreement that no other woods in the area would be sold for a period of ten years, so giving the sawmill a monopoly in the local area.[52] Similarly, at Glenlui in 1730 the Earldom was 'restricted from selling or manufacturing any other of their wood in the country for seven years.' [53] Other regulations were also introduced to strengthen the sawmills local monopoly; these prevented tenants cutting timber themselves or purchasing timber from outside the Earldom.[54]

These sawmills provided substantial but short lived returns; in 1729 the Glenlui mill made a profit of £1,467.15.1. scots, making it the most important source of estate income; the highest rental, on the Lands

of Castletoun, only brought in £596.10.10. scots.[55] The sawmill had sold 3,557 broad deals and 1,185 narrow deals at 6/8d and 4/6d scots respectively. Over 120 different sales were made in the local area, but few were sizeable: only six sales included over 100 deals.[56] The level of production at sawmills such as Derry and Glenlui was actually similar to that of mills in Norway; the Derry mill was expected to cut an annual average of 7-8,000 deals, while in Norway in 1688 it was believed that sawmills produced an average of over 7,500 deals annually. However, the comparison ends there; about 650 sawmills are recorded in the Oslo and Christiansand bishoprics in Norway in the 1680's, the first we hear of any Deeside sawmill is one at Glen Quioch in 1695.[57]

Attempts to develop the Scottish timber industry were made difficult throughout the 18th century by the rights of servitude enjoyed by tenants, although disputes about these rights also show that the growing importance of Scotland's woodlands was recognised . For example, although the Earl of Mar owned his Deeside lands and woods his tenants had the right to supply themselves with timber for 'their biggings and their necessaries for labouring of the ground.'[58] Mar's factor pointed out in 1734 that these demands were increasingly a great demand on timber production; whereas previously tenants housing only needed timber for the couplespan and roof changing housing standards meant they needed deals trees and joists for building flooring and furnishing their homes.[59] Moreover, to ensure that their needs were met Mar's tenants could halt timber production and sales of woodland.

During the course of the 18th century the timber industry in Upper Deeside expanded its operations; one measure of this growth was an increase in sales of timber to more distant markets. Already in 1693, Robert Edward, in his description of the County of Angus, had referred to such sales:

> Here is an abundance of timber for labouring utensils, and for the houses of the common people, but for the houses in towns, and those of the gentlemen in the country, timber is brought from Norway; not because Scotland does not afford wood sufficient to supply the whole kingdom, but because rugged and impassable rocks

> prevent its being transported from those places where it grows. And when, as in time of war, the inhabitants of Angus cannot import timber from Norway, they supply themselves with any quantity of planks and logs from the neighbouring woods, on the west of the Grampians; where they have water-mills, which, unless obstructed by frost, are constantly employed in sawing the timber.[60]

During wartime freight rates rose dramatically, and caused substantial increases in the cost of imported timber. However, as T.C.Smout has noted, Edward's evidence suggests that native lumbering could not normally compete with the cheapness of their foreign rivals.[61]

It is ironic that the Deeside timber industry, which had once relied upon war to provide it with a competitive edge, should have prospered so well in the post 1745 era. It has been suggested that Deeside lumbering greatly benefited from the peace imposed in the Highlands by the British government, and more especially from the 700 miles of road built in the area by 1769. In 1753 the road link between Braemar and Blairgowrie was completed; this was followed in 1766-7 by the road from Braemar to Blair Atholl, both were part of a military network reaching up to Fort George.[62] However, the overland transportation of timber was notoriously expensive; wood from Annandale was carried 12 miles on horseback to Leadhills in 1718 at a cost of 15d for every load of eight stone.[63]

A clear indication of the size and importance of the Deeside timber industry in general in the 1760's and of timber sales to Angus and Perthshire in particular, is provided by the evidence of William Lorimer, who visited Braemar and Glentanar in 1762-3. Lorimer was the personal tutor of Sir James Grant of Grant (1738-1811), and he was collecting information to be used in improving and modernising Grant's Strathspey estates. Lorimer chose to visit Deeside for information on the timber industry because:

> In the Knowledge and care of woods the people of Strathspey seem to be as far behind those of Braemar and Glentannar, as the Spaniards are behind the rest of Europe in Knowledge in general.[64]

After visiting Lord Fife's Delmore estate in Mar Lorimer wrote:

> Many of Lord Fife's tenants here spend a great deal of summer in buying at the Woods large Boards manufactured and carrying them to Angus etc. and there selling them- A Board 8 or 9 foot long, and about a foot broad, and as thick as will saw into 3 Deals, will cost at the Woods 2 shillings Sterling They spend too much time in this and neglect (their) agriculture.[65]

Again, after his trip to Lord Fife's woods at Braemar Lorimer told his master that:

> In general Lord Fife's Manager sells no Fir-trees as they stand in the Wood... He has men that fell the trees, and horses that drag them to the Mill, where they are manufactured into Deals, which the Country-people buy and sell to the tenants in Perth and Angus shires in such quantities, that it would employ ten mills to serve them all.[66]

This would appear to suggest that the timber industry in Upper Deeside was unable to meet the demand for its product in areas and markets opened to it only by fortuitous circumstances.

Sales of Deeside timber to other more distant markets remained intermittent, and they were dogged by transportation difficulties. Although sales to Aberdeen seemed an attractive proposition, with the timber floated down the River Dee, the river itself proved unsuitable because of its low water level. It was only possible to float timber downstream to Aberdeen once a year when the river was in flood.[67] A remedy was suggested in 1797; a canal from Aboyne to Hazelhead to float timber from Glentanar, however, despite high hopes, this did not come to fruition.[68]

Sales of Scottish timber outwith the local market were only possible in particular circumstances; for example, it has been suggested that plantation timber grown by Grant of Monymusk was the first of that type marketed 'nationally;' by the 1790's it was being sold in Aberdeen and throughout South and West Aberdeenshire.[69] However, these sales were simply a direct consequence of Monymusk's severe financial difficulties:

they do not signal the existence of a suitable national market for Scottish timber. Also, surely Aberdeenshire was only a local,or at best a regional market for Monymusk timber.

Nevertheless, within a Scottish context, the Upper Deeside timber industry had achieved a high level of sophistication by the 1760's. For example, deals were being produced to different specifications to suit their intended destination; short deals were produced for the local market, but longer lengths were specially cut for sales to Angus and Perthshire because:

> The South-Country people that buy Lord Fife's Deals love long Boards, those of Aberdeenshire like short Deals and Boards better.[70]

On his visit William Lorimer also saw much to admire in the way in which Deeside landowners successfully dealt with their tenants servitude rights to a supply of timber: their methods included restrictions on when timber could be collected, on the type of timber tenants could have, and employing full-time foresters to oversee all felling.[71] One method was to buy back the servitude rights and then sell the tenants their timber as it was needed. To Lorimer all these methods were important because he believed his master's substantial timber reserves were being squandered.

> In Strathspey there is as much Wood destroyd in building Walls of houses, as might serve a whole Nation.[72]

In his seminal work A History of Scottish Forestry M.L. Anderson provided an all too brief account of the foreign timber trade to Scotland in the 18th century. Anderson believed that:

> For ports in Aberdeenshire, which may, perhaps, have been adequately supplied from the natural pine forests, no details of imported timber are available.[73]

This is nonsense; the ports of Aberdeenshire imported regular and substantial amounts of timber from across the North Sea, moreover, details of this trade are available in both the statistics of the Aberdeen Customs Precinct (1743-1795) and estate records such as

the papers of the Duke of Gordon and Erskine of Drum.[74]

Nevertheless, the dream of capturing the timber market in North-East Scotland was strong amongst timber producers in the area; in 1748 Sir Henry Innes visited the timber store at Garmouth belonging to Sir Ludovick Grant, father of Sir James Grant and provided the following report:

> As I wrote to you formerly, was the price of your Wood moderate, and had you but stock enough upon the Beach of Garmouth, You would get all the change (business) from Aberdeen to the Northward, but I am afraid Norway timber will be brought in such vast quantities as must bring down the price of yours.[75]

If any Scottish region could hope to compete foreign timber imports Strathspey, because of its substantial timber resources, seems the most obvious candidate. The full extent of these natural pinewoods was recorded in the 1790's in the Rev. John Grant's report for the parish of Abernethy and Kincardine:

> The fir-woods of this country exceed all the natural fir-woods in Scotland put together, without comparison. Sir James Grant's woods of Abernethy, of many miles circumference, next, the Duke of Gordon's, in Glenmore, then Mr.Grant of Rothiemurchus's, who is supposed to have more trees than either of them. all in a line, of about 20 miles in length, on the south side of Spey, and all having the advantage of abundance of water to bring them to Spey.[76]

Attempts to exploit Speyside's abundant natural resources date back to the 17th century; local needs for timber were already being met by two sawmills in Abernethy at the turn of the century, and others appeared later, at Rothiemurchus in 1650 and in Glenmore by the 1680's.[77] Efforts to market timber on a wider scale were centred on the Royal Navy's need for ship's masts. In 1631 the Laird of Grant let part of Abernethy forest to an Englishman, Capt. John Mason, for 44 years at a cost of £20,000 scots.[78] Mason reported to the Commissioners of the Navy that the timber was suitable for their needs, but it is not known if any was extracted.

Some masts were purchased by the Navy during the First Dutch War, but these proved too brittle to be used except as a last resort. [79] However, the demand for naval stores was such that in 1704 the Commissioners of the Navy themselves reported that the woods of Speyside were 'likeliest to serve her Majesty and Government.' [80] During the reign of Queen Anne a series of Acts were passed to promote the import of naval stores from Scotland and America by offering a premium. This appears to have promoted attempts by both the Duke of Gordon and the Laird of Grant to send naval stores to London. [81] Both attempts failed, however, due to extraction difficulties.

Perhaps the most notorious event in the history of Scottish forestry took place in 1728 with the arrival of the York Buildings Company on Speyside. [82] This was a London share-speculation company which had first become involved in Scotland through the Commission of the Forfeited Estates following the 1715 rising. In Jan.1728 the Company purchased 60,000 fir trees on the Grant estate in Abernethy for £7,000. The scheme was thought up by Aaron Hill, a poet and manager of the Drury Lane theatre, who, as we have seen, waxed lyrical on Strathspey's timber resources. [83] Unfortunately for the Company Hill had exaggerated; a specimen cargo was sent to the Royal Navy's Master mast-maker at Deptford, and although the quality was thought excellent the timber was not at all first rate, that is, fit to be used as main-masts. [84] However, by this time the Company was already heavily involved, access to the woods was improved with road building, a passage was cleared down the Spey, several sawmills were built and 120 horses bought. Although the Company invested heavily and created a whole industrial infrastructure 'extravagence rather than efficiency appears to have characterised these operations.' [85] Within four years the Company had made a loss of £27,913. One of the major difficulties facing the Company was the high cost of extraction. This problem was recognised by Edward Burt who said of Strathspey's trees:

> none of them will pay for felling and removing over rocks, bogs, precipices and conveyance by rocky rivers, except such as are near the sea coast, and hardly those, as I believe the York Buildings Company will find in the conclusion. [86]

The Company attempted to continue by diversifying its activities, into lead-mining and charcoal and bar-iron production, however, in 1732 the Company's Governor, Col. Horsey, was arrested for debt on a visit to Strathspey. Although the Company continued working for a few years by issuing promissary notes by 1737 it was in liquidation.

An excellent case-study of the problems the York Buildings Company encountered in its attempt to market Strathspey timber nationally and in particular the difficulties found in competing with imported timber is found in a case heard by the Court of Session in 1733.[87] The case concerned a debt owed to the York Buildings Company by the Earl of Aberdeen. The previous year Col. Horsey made a verbal agreement to supply the Earl of Aberdeen with timber for roof joists, sarking, flooring and lining for his house at Kelly on the river Ythan in Aberdeenshire. The deals were to be collected from the sawmill at Coulakyle in Abernethy and the joists and scantlings at the sawmill at Garmouth at the mouth of the Spey.[88]

The Earl was expected to pay transport costs for floating to Garmouth and thereafter freight ships to bring his timber to the port of Newburgh and from thence to Kelly. Moreover,

> there was no special price agreed upon further than that the rates and value should be easier as if his lordship brought them from Norway and that assurances were given his lordship of being handsomely dealt with.[89]

However, after Aberdeen had paid almost £200 sterling to have four shiploads of timber carried from Speymouth to Kelly the material was inspected by his builders and their report was damning. The wright's criticism of the Speyside timber provides a useful insight into the Scottish timber industry's major shortcomings; his report details the size and quality of each batch of timber, and also answers the question - 'what would timber of similar quality cost at Newburgh if brought from Norway'? Again, it is significant that the Court of Session saw Norwegian timber as the staple which Scottish supplies had to compete against. Many of the wright's criticisms were general; the timber was of 'low quality' and 'insufficient for its intended use' however, more detailed complaints

such as 'too knotty' 'dead wood' 'roy' and 'blew' wood were also included. The wright's other main theme was the poor standard of milling; much of the timber was unfit for its intended use because it was badly sawn, it was too short or too thin, perhaps worse of all the timber was often of uneven and irregular cut.

Aberdeen eventually paid only a much reduced sum for his timber, less the cost of transporting it from Strathspey. He also freighted a ship at Dundee to bring timber more suitable for his needs from Fredrickstad in Norway. The timber which Aberdeen bought from the York Buildings Company was found suitable for only the poorest sort of use; as scaffolding, sarking, lathing and flooring and lining in the garrets at Kelly.

As we have seen, wars seriously disrupted the regular flow of imported timber into Scotland; this aided attempts to market Scotland's own timber resources on a more widespread basis. Between 1746 and 1748 several cargoes of timber spars and deals from Strathspey were sold in the English port of Newcastle. The timber was from Sir Ludovick Grant's forest at Abernethy, and it was sold by Ralph Carr, an important Newcastle merchant.[90] The sales accounts for individual shipments suggest that a useful profit could be made:

> Account of sales of spars and deals received from on board the Robert and Jane, Capt John Campion, for the account of Sir Ludovick Grant. Newcastle, June 9th 1747.[91]

225 spars	17-18ft	@	2/-	22.10.
409 "	14-16ft	@	1/8d	34. 1. 8.
7.0.23	12ft deals	£6.	per great hundred	43. 3.
10.2.29	10ft. "	£5.	" " "	53.14. 2.
0.3.23.	8ft "	£4	" " "	3.15. 4.
0.1.29	half "	£3.	" " "	1. 9. 6.
1.2.28	14ft. "	£6.15	" " "	11.14.
				£170. 7. 8.

Charges	
paid freight £40. 2/3 port charges 39/10d	41.19.10.
porterage, towndues and key dues spars	1. 9.
ditto of deals at 6/- per hundred	1.11. 6.
securing the deals and buyers servants	12. 6.
commission 2%	3. 8. 2.

The profit which Grant made on individual cargoes was substantial; although his timber was a diminishing resource and he had to meet the initial costs of felling and sawmilling his overall profit was also large - in the year 1746 to 1747 Grant made a profit of £500 on timber sales.[9] Nevertheless, Grant faced a series of problems in marketing his timber; the port of Garmouth at the entrance to the Spey was little known among shipmasters, few skippers had detailed knowledge of the river mouth which was a mass of shingle and sand bars.[93] This made it difficult for Grant to get ships to carry his wood south to Newcastle. Moreover, there was very little demand in the Strathspey area for goods from Newcastle; so cargoes of Abernethy timber had to carry the cost of freight for the return journey, although Grant did attempt to sell shiploads of coal, glass and tow.

One of the major problems in marketing Scottish timber was its poor quality compared to its imported rivals. Grant was fortunate that the use his timber was put to meant that quality was not of paramount importance. Grant's timber manager John Grant was told by Ralph Carr that, 'their being of course wood if bulkie matters not as they would answer as well for coal works as fine wood of the same dimensions.'[94]

As we have seen, the Deeside timber industry was able to compete with imported sources of timber during wartime because of the rise in shipping freight rates. Unfortunately for Sir Ludovick Grant timber from Abernethy relied on shipping to carry it to the coastal cities of Scotland and England. Indeed, several of Grant's vessels were troubled by French privateers operating off the Scottish coast in 1747.[95]

It was rather the disruption to the regular flow of imported timber during wartime which made sales of Abernethy deals and spars a more attractive proposition. Even so, the timber market was particularly volatile during wartime and difficult for Grant to operate in; for example, the arrival of convoys of Norwegian vessels could glut the market and force down the price of timber to a level which made Scottish timber an unprofitable venture. Just such a situation developed in Newcastle in August 1748, at the end of the war. Ralph Carr informed Grant that:

> there never was so wretched a market as ours is at present for timber and deals. We have such a fleet of Danish ships arrived

> as ever was seen at one time I believe not less than 40 sail, so that deals are quite unsaleable as our people taking advantage of the quantities arrived don't offer prime cost, as our key is crowded from one end to the other. I have ordered Pollock to deliver his cargo to the other side of the river and am stacking and covering the deals as it will be utterly impossible to sell before next spring. Pollock talks of going with a cargo for Inverness again and would bring another loading but I don't see its to any purpose as things have taken this strange alteration here.. as we have peace these Danish ships will give over coming and prices will be better than they have been during the war - which is a seeming paradox but very true for many of these Danes have been obliged to sell their cargoes cheaper than they cost in Norway.[98]

Another major problem for Scottish lumbering was maintaining a high standard of sawmilling, that is, the timber had to be cut in a clean regular fashion. So, for example, Ralph Carr wrote to Grant that, 'if your agents cut your deals a good thickness I have no manner of fear to sell all you could send at £5 and £6 for 10 and 12 feet.' Grant's manager noted this when he wrote, 'Mr Carr writes me to send deals long broad and thick to $1\frac{1}{2}$ inch.' However, in this aspect Sir Ludovick's Abernethy operation was less than successful; for example, Ralph Carr wrote:

> as demand for wood begins now to come on I this week went to the yard where Pollock's last cargo was landed with some buyers but I am vexed to see the deals your people have sent - they are exactly such thin ones as Tobison brought the first cargo to Sunderland. I believe not one in the whole loading is above 8 inches broad - I offered the 8 foots at £3 but cannot get it.[93]

The failure of the Abernethy sawmills to produce a regular and acceptable standard of cutting was probably of paramount importance in the failure of the enterprise to continue after the end of the War of the Austrian Succession. Ralph Carr attempted to continue sales during 1749, but in August of that year he wrote:

> I am surprised Wm Grant should have shipped such miserable as these last by Abernethy, some hundreds of these are only 6 and 7 inches broad - they will not pass here for deals under 9 inches and

> to sell these for the price of battens is to sustain a loss - they will not fetch above £3.10 - £4 a hundred. [98]

Sir Ludovick Grant was also experiencing problems in Abernethy itself; in March 1749 he tried to improve matters by sacking the manager of his woods, William Grant of Dalchaple. However, the real problem appears to have been that all the easily extractable timber had been felled; as John Grant of Belimore pointed out when he was offered Dalchaple's post:

> if you do not make profit of your woods by his close attendance, it cannot be thought or expected, that I could make better returns for I think the most convenient part of your woods is cut already, and I know the best of them at Glencharnach is so too. [99]

The increase in demand for timber which is shown in the growth in imports during the 1760's also promoted new attempts to exploit Strathspey's resources by a new generation. James Grant of Grant and William Lorimer, his former tutor, began to reorganise Grant's substantial woodland holdings in Strathspey, although they were still uncertain whether Grant's father had been successful in his Newcastle venture. [100] New policies were developed in planting and woodland management although these were probably more significant in the long term. New sawmilling technology was introduced in the form of steel saws from Sheffield for multi-blade sawmills. A more exotic form of sawmill was also built; this bore-mill manufactured Grant's timber in situ, and produced wooden water-pipes. However, attempts to market these pipes in London failed after a few years production due to the high cost of shipping freight. Grant's attempts to develop more conventional forms of timber production were also less than successful; in 1769 the woods and sawmills of Abernethy were leased out, allowing 100,000 trees to be cut over 15 years @ 1/7d each. However, this lease was given up as unprofitable within three years. [101]

A useful insight into the failure of Strathspey's timber industry to compete with imported timber during the 1770's is provided by the detailed accounts of building work undertaken at Gordon Castle on Speyside by the Edinburgh architect John Baxter. [102] Baxter bought several cargoes of timber direct from ports in Norway, Sweden, Prussia and Russia. His choice of source for deals appears to have depended upon

several factors; although Russia provided top quality deals which were substantially larger than Norwegian and Swedish deals it took several months to order and ship a cargo from St Petersburg or Onega. Moreover, it was difficult to handle the large vessels demanded by a journey to the Russian ports at Garmouth. Baxter's immediate needs for building work were of paramount importance and deals from Norway and Sweden could be brought over relatively quickly. When the demand for timber was urgent Baxter actually went to Edinburgh and purchased deals at the Leith timber bush: they were then shipped coastwise to Garmouth, so paying a double freight. Local timber was only used for the most mundane tasks, such as scaffolding. When local timber was considered as an alternative to imported sources it was noted that, 'the wood is of the roughest coursest kind, I am informed it would not answer your purpose.' [103]

During the last two decades of the 18th century the forests of Abernethy, Rothiemurchus and Glenmore were all successfully exploited for timber. Scotland's most substantial lumbering operation began in 1785 when two Yorkshire merchants, Dodsworth and Osborne, leased Glenmore from the Duke of Gordon for £10,000 over 26 years. The timber was floated down the Spey to Garmouth where the merchants built two sawmills, one a water powered mill with 30 to 26 saws and the other a windmill working between 36 and 40 saws. The manufactured timber was sold along the north coast of Scotland from Aberdeen to Skye, while other cargoes reached Hull and the Royal Navy's shipyards at Deptford and Woolwich.[104] Unfortunately there is no record of the level of these sales to compare with imports. Perhaps more significantly Osborne and Dodsworth established their own shipbuilding yards in Garmouth using Strathspey timber at source. Undoubtedly, the yards' were successful only because of the demand created by the wars with France, but by 1815 when operations ceased they had built 47 sailing ships, totalling 19,000 tons, the largest vessel being 1,050 tons.

The Strathspey timber industry flourished due to several reasons; the rapid expansion in the demand for timber was obviously important, while the French Revolutionary Wars from 1792 onwards not only disrupted imported timber supplies and forced up prices through increased freight rates, but also increased demand for timber for shipbuilding: Moreover, to help

meet the costs of war the British government increased import duties on timber several times and so made native timber a more attractive proposition.

A vivid picture of the Strathspey timber industry between 1797 and 1830 is found in Memoirs of a Highland Lady by Elizabeth Grant, the daughter of Grant of Rothiemurchus. She believed that the timber on Speyside first became marketable around 1795, and then, within two decades the industry had developed to such an extent that, 'the wood manufacture was our staple, on it depended our prosperity.' 105

The dramatic expansion and success of the Strathspey timber industry took place after the period we are concerned with here. Nevertheless, the reasons for this relatively sudden change in fortune for proprietors like Grant and Gordon are of some interest in judging their previous inability to exploit their timber resources to the full.

The financial burden of the war with France caused almost annual increases in the import duties on timber between 1795 and 1809. However, in 1809 these already substantial duties were more than doubled. The reason for this increase was a change in government policy on timber import duties; until 1809 duties were used only as a means of raising revenue, however, in 1810 the government began using timber import duties for strategic purposes. Timber supplies were of vital importance for the Royal Navy, but imports from Northern Europe were often disrupted. To ensure a regular supply of timber the British government in 1810 imposed discriminatory duties to promote supplies of timber from Canada. This policy greatly increased the price of all imported timber and so made Scottish timber a more attractive proposition.

British Timber Duties 1787 - 1813 [106]

Duty on sawn timber 12' - 20' in length, 1¼" - 3¼" thick

	£	s	d
1787	2	13	0
1795	3	19	6
1796	4	3	6
1797	4	7	6
1801	5	16	9
1802	6	8	0
1803	6	8	0
1803	7	1	0
1804	8	0	0
1806	8	10	8
1809	8	15	0
1810	17	10	0
1813	20	15	7⅓

A measure of the importance of this government policy for the Scottish timber industry is provided by the wood sales accounts for Grant's Findlater and Seafield Estate; in 1809 these sales reached a 20 year peak when they totalled £533. However, by 1812 when import duties had taken their full effect Grant's timber sales rose to over £13,665.[107]

In The Wealth of Nations , first published in 1775, Adam Smith remarked that:

> In the New Town of Edinburgh, built within these few years, there is not perhaps, a single stick of Scotch timber.[108]

The reasons for this particular situation, and also for the general failure of Scotland's timber resources to compete with imported timber, have become apparent in our study of timber production in Rannoch, Deeside and Strathspey. Scottish timber made little impact on its home market due to four main reasons; its relative scarcity, its poor quality, the technological backwardness of Scottish sawmilling and extraction difficulties which led to high transportation costs.

The scarcity of Scottish timber and its poor quality were both largely due to the Scottish climate and little could be done to remedy the situation. Planting went some way to increasing Scottish woodland cover, but this was a long-term process - substantial areas of plantation timber first reached maturity in the early 19th century. Moreover, producing softwood timber for building was only one of several reasons behind planting.

Sawmilling technology in Scotland improved over the course of the 18th century. Modern technology in the form of multi-framed water mills driving several thin steel saws arrived as early as the 1730's with the York Buildings Company. However, most sawmills remained small temporary operations, often using archaic technology and exploiting a local monopoly for the supply of timber. The general standard of sawmilling only improved towards the end of the century following the rapid expansion in demand for timber.[109]

Undoubtably the most important reasons for the failure of attempts to exploit Scottish timber were extraction difficulties and high transportation

costs. Overland transport for timber was prohibitively expensive; for example, in 1773 it cost John Maitland of Eccles near Coldstream 7d per cubic foot to have Memel balks carted from Leith. This was higher than the 6d per cubic foot which it had cost to carry the timber from Memel to Leith. [110]

If Scottish timber was to compete with imports it had to be transported from the Highlands as cheaply as possible. The answer to this problem was thought to be Scotland's rivers; in 1719 the Swedish spy Henry Kalmeter wrote:

> In the northern parts of the highlands are, as they tell, very large woods of excellent fir etc. and though Herman Moll in his mapps takes it to be easy to make there some rivers navigable for carrying from hence timber down to the seaside so that they should not have occasion to get it from Norway, yet severall people have told me that it is not, or may be found practicable for the rock and hills. [111]

As we have seen, Kalmeter's opinion that Scotland's rivers would prove inadequate for timber transportation was correct; the river Tay had too much water and the river Dee too little. The river Spey ran through the most substantial timber reserves in Scotland, and great efforts were made to develop its potential. During the 1730's the York Buildings Company cleared several obstructions from the river and introduced rafting techniques. However, for much of the century efforts to utilise the river were hampered by legal action over the damage which timber floating caused to other river users, especially salmon cruive fishings. In 1791 the Duke of Gordon's lawyers referred to:

> the unparalleled litigation in which he and his ancestors were engaged in concerning both the rights of fishing and floating upon this river, which lasted above half a century. [112]

Finally, Speymouth itself proved a problem with its shifting sandbanks, also the port was remote from the major centres of demand for timber in Scotland, so its timber had to carry freight costs just like its better quality imported rivals.

FOOTNOTES

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21. Tivy (1983), loc.cit., p.83.

22. Ibid., p.90.

23. Steven and Carlisle (1959), op.cit., pp.1-5.

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27. Albion (1926), op.cit., p.30.

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30. Anderson (1967), op.cit., vol.1, p.244.

31. Register of the Scottish Privy Council, Third Series, vol.8, p.147.

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86. Burt (1818), op.cit., p.29.

87. SRO,GD 33/3/0/55, Aberdeen Muniments.

88. Sarking was one and a half inch thick deals. These deals were nailed to joists to sit roof slates upon. Scantlings were flooring or roofing beams of less than inch square. Lining referred to any wooden interior coveri

89. SRO,GD 33/3/0/57.

90. SRO, GD 248/173.

91. SRO,GD 248/172.

92. SRO,GD 248/173.

93. SRO, GD248/172; CS 96/2258/748.

94. SRO, GD 248/168.

95. SRO, GD248/173.

96. Ibid.

97. Ibid.

98. Ibid.

99. SRO, GD/248/173/4.

100. G.A.Dixon, 'Forestry in Strathspey in the 1760's ', Scottish Forestry,32 (1977), pp38-60.

101. Ibid., p.56.

102. SRO,GD44/51/384.

103. Ibid.

104. Withrington and Grant (1982) op.cit., pp.669-70; G.Jackson, Hull in the Eighteenth Century (1972), pp. 184-5.

105. E.Grant, Memoirs of a Highland Lady (edition 1988), vol.1, p.225.

106. Reports of the House of Commons, 'Timber Duties', 19(1835), p.519

107. I.D.Grant, Landlords and Land Management in North-Eastern Scotland. 1750-1850. University of Edinburgh unpublished PH.D.thesis (1975),vol. 4, p.29.

108. A.Smith, An Enquiry into the Nature and Causes of the Wealth of Nations (edition 1910), vol.1, p.152.

109. Elizabeth Grant discusses the growing rationalisation of sawmilling in Strathspey in the early nineteenth century as small local mills in the woods were replaced by larger units at the mouth of the Spey. Grant (1988), op.cit., vol.1, p269-70.

110. SRO, CS96/2250.

111. Smout (ed.) (1978), loc.cit., p.5.

112. SRO, GD 44/35/11.

CHAPTER FIVE

ORKNEY'S TIMBER TRADE IN THE EIGHTEENTH CENTURY

Within the history of the Scottish-Norwegian timber trade links between Norway and the Orkney islands are of particular interest for several reasons; the islands had strong historical connections with Norway: politically they were actually Norwegian until they were pawned to Scotland in 1468 when James III of Scotland married Margaret of Denmark. Commercially the islands were regarded as Norwegian for a further century; until 1580 ships from Orkney were privileged, that is, they paid no customs tolls like other foreign vessels.[1] Even in the port books of the eighteenth century Orkney vessels were specifically recorded as such, while ships from elsewhere in Scotland seldom had their home port noted.[2]

Orkney's inability to meet its needs for timber was one reason why trade links with Norway continued. Moreover, Norway provided a useful market for Orkney's surplus grain. Although the land and climate were more suited to grass crops and beef production, in the eighteenth century Orkney agriculture was committed to grain production. This system was perpetuated by the system of payments in kind to superiors; taken together rental in kind in the Earldom and Bishopric estates held by Dundas in the late eighteenth century demanded nearly 300 tons of bere and 150 tons of oatmeal and malt annually.[3]

Trade between Orkney and the west coast of Norway can be traced as far back as 1186; in a speech in Bergen King Sverre specifically welcomed Orkney merchants to Norway since they brought 'such things as we cannot do without.' By the sixteenth century trade links were well established; several Orcadian merchants settled in Bergen, some held office as city councillors and one was appointed burgomaster. Also, a steady stream of youngsters from Orkney found employment through the governor of Bergen castle.[4]

However, Orkney's timber trade was not carried out in Bergen itself, but rather 'in the woods', that is at small landing places and timber lading ports at the mouth of the Hardanger and Bjorna fiords, thirty or forty miles south of Bergen.[5] These ports 'in the woods' included Tysnes and Godoysund - famous as the source 4 or 6 oared boats, which after being built in Norway and fastened with wooden pins were dismantled and shipped in 'kit' form, to be re-assembled in Orkney.[6]

In 1566 four Orcadian ships carried timber from Sunnhordland; 20 dozen deals, 9 fir beams, 8300 baandstaker (barrel hoops), 100 knapholt (pieces of bent oak for shipbuilding) and 12 boats.[7] Between 1597 and 1627 126 ships from Orkney and Shetland sailed from the fiords of Sunnhordland, that is 14.9 per cent of foreign departures.[8] Occasionally Orcadian vessels are recorded trading further south in the fiords of Ryfylke; four carried timber cargoes home in 1612 and three in 1635.[9] The five Orcadian vessels which sailed from Bergen and the woods in 1578 were two 'pinks' with a combined burden of about 68 tons, and three 'jagts' with a total burden of about 82 tons.[10] Even smaller vessels than the 'pinks' and'jagts' remained commonplace in Orkney's trade with Norway well into the eighteenth century: in 1598 four Orcadian vessels left Sunnhordland, their burdens were 10,10,18 and 20 tons.[11] These vessels were probably similar to the 'great boat' built by Thomas Baikie of Kirkwall in 1662 for two Stronsay men. This vessel was thirty feet in the keel, planked with six strakes of oak. She had two masts and six oars, and was open apart from a half deck extending to the foremast. The burden of this 'great boat' was only 6 or 7 tons.[12] Increasingly this type of frail craft was replaced by larger, fully decked ships; in the Cromwellian period Kirkwall possessed three ships of 25, 27 and 33 tons, and by the early eighteenth century

the largest Orkney ships were probably about 50 tons.[13] However, in 1728 James Spence made a voyage to Norway in a 'great boat', the Janet of Sanday. The last 'open boat' to make a voyage is recorded in the Kirkwall port book for 1743.[14]

Orkney's long continued links with Norway were maintained because of the lack of trees on the islands; essential timber for building work, agricultural implements and boats had to be imported. The lack of trees on the Orkney islands has been a topic of note among visitors and commentators for centuries, it has also produced several humorous remarks. For example, according to Alexander Fenton,'to an Orkney man, fuschia-bushes along a dyke-side make a row of trees.[15] A fine sycamore stands in Albert Street, Kirkwall's main street; a lecturer on Orkney said solemnly that for the benefit of Orcadians who had never seen one and might fail to identify it, a notice was attached on which was printed, THIS IS A TREE.[16] As early as 1577 Dionyse Settle wrote of the islands that, 'they are destitute of wood'.[17] In 1693 the Rev. James Wallace noted, 'there is no forest or wood in all this country, nor any trees, except some that are in the Bishop's garden at Kirkwall'; and in 1791 the Rev. George Barry wrote, 'there are almost no trees in all this country, if we except a few fruit trees in Kirkwall.'[18] The situation in the eighteenth century was well summarised by the Earl of Galloway in 1748; following his arrival from Scotland Galloway became involved in the Pundlar Process, a dispute between Orkney landowners and the Earl of Morton over the pundlar and bismar weights used to weigh produce collected as rent and skat (local land tax). As a newcomer, or 'ferrylouper' Galloway was asked rather whimsically if he would continue the Scottish fashion for tree planting on his new estate:

> some of the company proposing that he should plant trees on Burray, he swore by God no trees would grow in Burray, except Pundlar and Bismar - for they grew everywhere.[19]

In fact, given the right conditions trees can thrive on Orkney; two substantial plantations dating from the nineteenth century still exist today, at Balfour Castle on the island of Shapinsay and at Binscarth in Firth, the product of work by the agricultural reformer Robert Scarth.

Unfortunately, the most recent plantation of trees was destroyed by fire just as it reached maturity. This plantation on Hoy was an experiment begun in 1954 and the Orcadian, the island's newspaper, introduced the plantation in an article by Ernest Marwick, a leading historian and folklore expert:

> For generations Orkney's treeless state has been almost a joke. We have all heard the stories about the 'Big Tree' in Albert Street, Kirkwall, and how it is taken in at night to be watered. Trees were so rare that we could not afford to loose even one. It has been maintained that conditions in Orkney are entirely unsuitable for growing trees. The soil is too shallow or too poor and the wind is too strong - so run the arguments. But across the Pentland Firth in very similar conditions trees do grow. A few people have thought that it may be possible to grow them on this side.. [20]

The Hoy experiment proved that trees could be grown on Orkney, given the right conditions, and that meant shelter from the wind. In a recent booklet the Orkney Island Council Department for Physical Planning and Development explained:

> that tree planting is restricted in Orkney to areas protected from the winds, the opposite state of affairs exists in most of Britain where trees are established to provide shelter for houses. [21]

Trees do not thrive on Orkney, because of wind blast, exposure and sea-spray; wind is the most notorious feature of Orkney's climate, and it is accentuated by the smooth relief of the islands. Gales are recorded on average 29 days a year and the highest gust ever recorded in Britain at a low level site was 136 miles per hour at Kirkwall Airport on 7th February 1969. In the eighteenth century the effects of the climate were reinforced by grazing and the cultivation of a large part of the islands. [22]

In 1786 Dr Thomas Balfour of Shapinsay wrote concerning the improvements of Orkney's agriculture that:

> one great bar to agriculture is the want of wood of every kind, we have none but what we import from Norway at great expense. [23]

In fact, throughout the ages the Orcadians showed great adaptability to reduce their dependence on imported timber; alternatives were developed such as straw plaiting for the distinctive Orkney chair, the 'strae-beckit stool'; storage areas made of straw were known as 'speum cubbies', and containers were called 'mezzies', 'kiskies' and 'budies'. [24] Because of its value timber was re-used whenever possible; for example, when an Orkney house and farmstead at Backaskaile was being rebuilt in 1749 the farmer and tacksman agreed that although the buildings were ruinous and not repairable:

> we do think that the whole timber of the old houses will never serve for rafters or small timber to the new houses so that the whole new wood necessary will be the couples and doors for the new houses. [25]

In fact, the traditional narrow linear construction of buildings on Orkney minimised the need for large roofing timber.[26]

Driftwood provided an alternative source of timber; for example, in 1683, several of the chimney-pieces seen in Sanday were made of driftwood, although this was less important than shipwreck; this source provided valuable timber cargoes as well as the fabric of grounded or broken-up vessels.[27] The central position of the Orkney islands on the shipping route between the ports of western Europe and the Baltic and those of western Britain and North America made them a serious danger to passing vessels. The low-lying northern islands in the Orkney group were particularly hazardous as many vessels attempted a northward passage of the Orkneys to avoid the notoriously difficult Pentland Firth only to meet their end on Sanday and North Ronaldsay. In 1774 this problem was discussed by George Low:

> Still calm.. Sanday and North Ronaldsay look like threads on the water, though we sailed within a few miles of them, which is the great loss of shipping every year, and none more remarkable than last season, when ships and cargoes to the value of near £100,000 sterling were lost there.[28]

At one time there was hardly a house in the North Isles whose beams had not once been a ship, and examples of wreck timber in use as roof beams and door lintels may still be seen today. The island of Sanday appears to have been especially blessed with this source of timber, perhaps as a result of the Rev. William Grant's prayer.

> Nevertheless if it please Thee to cause helpless ships to cast on the shore, oh! dinna forget the puir island of Sanday.[29]

Sanday appears to have acted as an unofficial storehouse for timber for the other Orkney islands. Ernest Marwick noted that:

> so much wood piled up on Sanday for instance that it was customary for anyone wishing to buy timber to go there as one would go to a market. In 1880 John Brodie, wright in Kirkwall, included this item in an account: 'To myself and apprentice being four days in Sanday looking out wood'. [30]

Wreck timber from Sanday also found its way further afield; in 1749 open boats carried timber from Sanday to Shetland, and in 1787 James Trail of Hobister wrote to Dr.Thomas Balfour concerning regarding a wreck on Sanday:

> I have had it in view to take a cargo of wood from the wreck of the Flora over to Caithness for some farm offices and the supply of the tenants.[31]

As holder of the earldom estate in Orkney from 1707 onwards the Earl of Morton had rights of 'Admiralty'. When wrecked vessels and cargoes were unclaimed they were divided into thirds; one portion passed to Morton as Admiral, the second was the heritor's on whose ground the timber was salved and the salvers received the third portion. Morton took a keen interest in his right to wrecked timber and maintained a regular correspondence with Andrew Ross, his Steward and also sheriff-depute and vice-admiral on that subject. In 1741 Morton wrote:

> There was some timber lying in the island of Sanday on my ground which has been advertised to the proprietors again and again but they do not it seems think it worth their while to take it away, so I'd have part of it carried to Kirkwall for

> repairing the house there and the rest to Birsay where I intend to build a little lodge...let any timber that belongs to me in the country be all brought to these two places.[32]

Morton had several cargoes of salvaged timber carried south to his estate at Aberdour in Fife. In 1733 Morton intended to ship a cargo of timber south, but first he had to negotiate with the owner of the coast where the ship was wrecked, concerning who should pay the salvers:

> you'll see I'm as well off in your paying the salvage conforming to my account save only in this that I could have more easily paid the salvers with timber out of the subject than with cash which is very scarce in this place.. besides I wanted some of the timber for my own use I having none but what I must bring from Norway.. for though I can buy cheaper and better yet the charges and freight are saved...in spite of all I can do to prevent it the country people are daily stealing the timber believing they have a natural right to all wrecks.[33]

The attitude and rights of the local people to wreck timber were matters of some contention, as Morton's letter makes clear. Orcadians would probably have agreed with the feelings of their neighbours on Shetland; in 1733 Thomas Gifford wrote:

> The timber brought here from Norway is very dear, and the inhabitants are not able to buy it, so many of them depend upon that wreck timber, which they call godsend, and still think they have a better title to it than any else have, and therewith they repair their small houses.[34]

While salvers could expect a one-third share of unclaimed wrecks and cargoes Dr.Thomas Balfour in 1797 said that salvers should get 5 per cent of the value when aiding distressed vessels.[35] Disputes over salvage rights were common; in 1790 a Sandwick mob plundered a small sloop stranded on the shore, their attitude had been hardened by a previous episode when a ship laden with deals was wrecked in the same place, but after helping save both cargo and vessel the locals were refused salvage

by the owners of the vessel - ship and cargo were valued at £1,000.[36]

During the late seventeenth and early eighteenth centuries Orkney's economy was dominated by agricultural production; overseas trade was geared to the disposal of surpluses of grain - bere, oatmeal and malt. In this ways rents and feu-duty which were received in kind were converted into a money income; approximately one-third of annual grain production was used to pay rents and feu-duty and almost all of this was exported.[37] In the early eighteenth century the Rental (rent and feu-duty) on the Earldom and Bishopric estates totalled c.730 tons of bere and c.50 tons of oatmeal. Through grain sales in Norway, the nearest market, Orkney was provided with a supply of timber, an indispensable necessity on the treeless islands.[38]

Orkney's grain trade received a positive boost in 1695 when the Scottish parliament introduced a bounty on grain exports which enabled merchants to sell their grain in Norway at one-third more than its Orkney price.[39] The bounty was extended after the Treaty of Union in 1707, although it was lifted in years of grain shortage such as 1709, 1741 and 1756 to 1759 when exports were prohibited due to harvest failure. The bounty acted as an inducement to export by paying 2/6d (30/- scots) per quarter of bere exported, as long as the price was at or under 24/- sterling, and a similar bounty on oats as long as the price was at or under 15/- sterling. Normally, the bounty was worth about one-third of the price in Orkney of bere and oats.[40] Moreover, the bounty system was open to corruption; malt left to steep in water could swell to ten times its normal size, and any loss in the quality and sale price was more than compensated for by fraudulent bounty claims. In Orkney the bounty system was exploited shamelessly; apart from deception and bribery to 'adjust' cargoes, the Orkney weights and measures system allowed discrepancies to creep in; in 1717 five cargoes of grain exported by a copartnery including George Traill, the Earldom Chamberlain should have received bounty of £260. In fact, they were paid £491 sterling almost twice the correct bounty.[41]

The introduction of the bounty on grain exports was of particular benefit to Orkney's landowners and merchants (the two activities were combined by

the 'merchant-lairds') after the disasters of the late seventeenth century; a series of poor harvests culminated in the famine of 1696 when hundreds died and the harvest yielded less than one-twentieth of its normal crop. 'King William's Ill Years'in Scotland are remembered as 'Brand's Years' in Orkney after one of the notorious tacksmen of the period. Many leading families were bankrupted and because trade was geared to the export of agricultural surpluses both merchants and landowners were reduced topoverty - one notable merchant-laird to lose everything was William Craigie of Wyre. By 1696 the five or six vessels which belonged to Kirkwall merchants had been lost or sold.[42]

The organisation of Orkney's overseas trade during the early decades of the eighteenth century was largely determined by the losses of the Brand Years. Because of the shortage of capital several merchants would operate together as a copartnery; merchants and landowners would sign 'forehand bargains', in which the price and quantity of produce was agreed for a given number of years. Also, most of the shipping used in Orkney's trade at this time came from elsewhere; only fifteen Orkney-owned vessels can be traced between 1700 and 1739, while forty Scottish vessels, mainly from the Firth of Forth, can be found trading with Orkney.[43]

One of the leading copartneries involved in the grain trade was David Traill of Elness, an Orkney merchant-laird, and his cousins James Traill, an Edinburgh merchant and George Traill, the Earldom Chamberlain. Between 1716 and 1720 the copartnery bought the Earldom rental and exported about 500 tons of bere annually.[44]

In the first two decades of the eighteenth century Orkney grain exports to Norway reached southern ports such as Arendal and Christiansand as well as the west coast ports of Bergen, Molde, Kristiansund and Trondheim; in 1714 David Traill sold a cargo of grain in Bergen, but he noted:

> The prices for our grain was best to the easterd at Arendall Christiansand Mandall or the Clove, but all depended upon the pertinency of your merchant,being ye have no factors ther butt all sharp merchants.[45]

Although the ports of western Norway were closer and had Scottish merchants acting as factors, the Traill copartnery's most profitable voyage (£111 sterling) was to Christiansand in 1715 with grain out and timber back.[46] However, from 1721 Orkney's grain trade with Norway was effectively limited to the Norwegian west coast.

As a grain producer itself Denmark sought to retain its market in Norway by imposing a toll on foreign grain imported into Norway;from 1721 foreign vessels had to pay a toll of 20 stivers per barrel of bere and 5 voes of meal in any port east of the Naze, Norway's southernmost point; this effectively prohibited imports on the south and east coast of Norway. To the west of the Naze the toll was 6 stivers on each barrel of bere or 5 voes of meal (3 voes = 1 cwt, 1 barrel = $7\frac{1}{2}$cwt). For the ports of western Norway the toll meant Orkney merchants could not make a profit if the price of bere in Bergen etc. fell below 3 to 4 marks per barrel (8 stivers = 1 mark, 6 marks = 1 Rixdollar, 5 Rixdollars = £1 sterling).[47] However, according to Hugh Marwick the grain trade with western Norway remained profitable; between 1700 and 1730 the price of bere in Norway averaged 52 stivers per barrel.[48]

When vessels sailed from Orkney for western Norway they seldom had a specific port in mind as destination; for example, in a charter party between an Edinburgh merchant, Robert Forrest, and Florence Greig, captain of the Hope of Queensferry, for a voyage from Leith-Orkney-Norway-Leith, the captain was instructed:

> saill from thence (Orkney) to Bergen in Norway or to Dronton (Trondheim) Forsund (Kristiansund) or Molde or any other Port thirty leagues to the eastward or northward of Bergen.[49]

Again, in 1716 the Traills provided captain Donald Groat of the Ann and Sarah of Burntisland with even wider perameters; he was to sail to either Trondheim, Kristiansund, Molde Arendal or Christiansand - the vessel eventually went to Molde.[50] One reason for the lack of precision was the weather, for example, in 1705 David Traill sailed from Orkney to Norway, but he was blown to Shetland, the vessel was kept at Shetland for a month by contrary winds and the cargo overheated. Eventually Traill reached Kristiansund but as he noted, 'it pleased God to send us safe hear

(through many difficultays).. wee have been 22 days tost at sea'.[51] The return journey from Norway could be just as unpredictable; in 1712 David Traill waited three and a half months for a fair wind for Orkney.[52] Another reason for the open choice of destination in charter parties was the fluctuating price of grain in each port; In Jan. 1712 James Traill noted:

> I am advysed here that Drunton (Trondheim) will be the best port for sale in March or Apryle where it sells reasonably at present.[53]

A major difficulty facing Orkney merchants intent on making a profitable sale of their grain cargoes was the poor quality of the product. Orkney corn was of such poor quality that Norway was considered to be the only market which would accept it. Moreover, 'the first of the Norway market is the only time the victual does sell' -Orkney needed to exploit its proximity to Norway, reaching port before its better quality competitors.[54] In 1699 the Edinburgh merchant Alexander Pyper provided his supercargo with a detailed letter of instructions for a round trip to Norway with Orkney bere and returning to Leith with timber. The supercargo was told to visit each of the west coast ports in turn and offer the grain for sale, however, he was not to mention its source, such was the reputation of Orkney grain:

> upon arrival at any of these places you may say you are bound for Dronton and only to try the market there and do not tell what place you are come from only Scotland in general and that the prices of victual are extraordinarily dear there and by the time of your coming away it was expected the government was to discharge the exportation, and more you will enjoy the skipper and seamen not to say anything that they are come from Orkney.[55]

The amount of grain exported from Orkney to Norway in the early eighteenth century far exceeded the islands' need for timber; for this reason the most common shipping pattern was not a simple exchange of primary products between Orkney and Norway. Most vessels carrying grain from Orkney to Norway then completed a triangular shipping trip by selling their timber cargo in Leith. Sometimes the state of the timber market in

Leith determined the Norwegian port visited by Orkney merchants. In 1712 when James Traill informed his cousin David that the best price for Orkney grain would be found at Trondheim he also recommended that port in preference to Bergen because of demand for timber in Leith, and he also suggested bringing fir timber 'trees' (uncut balks) and spars rather than deals:

> The best homeward cargo at this place will be double and single sparr which sell verry weell at present, double trees in wholesale at 2 mks and some more, and single trees at 14/- or 15/- per piece; on both which the duty is but small and inconsiderable: Bergen dealls £4 per 100, but verry plenty here.[56]

Unfortunately, the surviving merchants' accounts are very imprecise with regard to timber: prime cost per great hundred deals ranged from 6Rd to 9Rd from Molde, 5Rd in Bergen and Kristiansund and 9Rd in Trondheim. However, the accounts never mention the length or thickness of deals involved. Between 1690 and 1730 freight costs varied from 27/- to 40/- sterling per last.[57] In Leith most of the timber was sold 'at the mast', that is the purchaser paid the import duties - prices ranged from £4 to £4.10/- per great hundred deals, but again the surviving records do not allow a breakdown of the various costs involved in particular shipments. The profits made by merchants involved in the grain and timber trade were moderate; those made by the Traill cousins varied from £21 sterling in 1727 on an Orkney-Trondheim-Leith voyage to £112. sterling in 1715 on a trip between Orkney - Christiansand - Leith.[58]

While individual shipments may only have been moderately profitable Ernest Marwick has pointed out that the Traills left convincing proof of their mercantile success - although each was a younger son with little initial capital they ended up as substantial Orkney lairds - George and James bought estates for £1,666 and £2,222 sterling respectively.[59] The real profits to be made in the Norway trade did not lie in bona fide sales of grain or timber, but rather in smuggling brandy and spirits. In 1713 the Earl of Morton's Chamberlain wrote of the difficulties of selling Orkney bere in time of war when freights were high but a good harvest meant grain was plentiful-and therefore cheap:

> I dread the high freights will reduce the prices to a small matter if markets are not better than we hear they are at present

> in Norway, at the same time I do not but see that your lordship is under necessity to dispatch part of this bere abroad.. the returns are deals, trees scows and tarr chiefly a little good brandy run will help the homeward much, which Norway traders must not make conscience of doing, to be on a level with their neighbours.[60]

For much of the eighteenth century in Orkney 'conscience' was determined by economic necessity: smuggling was regarded as almost a respectable occupation in which most leading families and merchants participated. The activities of men such as George Eunson, excise officer and smuggler, have now passed into Orkney folk-lore, reflecting perhaps both the level of smuggling activity and its popular support.[61]

Spirits were smuggled into Orkney in two ways; either in whole shipments direct from France or the Netherlands, or alongside legitimate timber cargoes from Norway. In 1723 the Traills and two other Kirkwall merchants brought over an illicit cargo from St Martins in France. They made a profit of £1,414 scots on the sale of wine brandy and salt; one of the merchants involved, Magnus Meason, received £28.13/-'for sending about some wyne and brandy to Kirkwall and livering the same and for wine to treat the Customs officers'.[62] Conscience indeed! Again, in 1770 William Watt and Thomas Balfour of Huip imported 'certain goods' from Rotterdam. In this shipment the Norway trade was involved indirectly; the smuggler's vessel, the Peggy, had false papers declaring Bergen, and not Kirkwall, as its destination. Moreover, the captain had false invoices made out to Alexander Wallace, the Scotsman who was British Consul in Bergen. The vessel was captured by a Customs vessel off the Scottish coast near Montrose.[63] Bergen was a centre for brandy smuggling to Britain and Consul Wallace was heavily involved. However, although whole cargoes of spirits were carried to Scotland from Bergen, normally spirits were carried alongside a timber cargo; for example, as part of a charter party in 1780 George Eunson wrote, 'I agree to serve you again to Norway for £25 sterling and the cargo of wood home, I to have liberty to carry as much goods counter band as before'.[64] Again, in 1784 captain Irvine of the Margaret carried a cargo of kelp to Newcastle for William Watt of Kirkwall, his insructions continued:

> if you cannot procure a freight you will buy a cargo of coals

> and proceed to Bergen to the consignment of Mr.Wm Farquhar who will load you with a cargo of deals which we hope you will take care to be good and sufficient of their kind and if you think proper to take 40 A---r B----y if it does not exceed 6 Rixdollars you can put them on shore in the island of Sanday as you goe past to the westward with your cargo of wood.[65]

By the end of the eighteenth century the activities of the smugglers within Orkney's trade with Norway had substantially declined: in the First Statisical Account the Rev. George Barry wrote of the recent decline in smuggling, while the Rev.Francis Liddell of Orphir noted that, 'owing to the patriotic exertions of some of the first gentlemen of the country (smuggling) is now happily suppressed'.[66]

The decline in smuggling in Orkney was directly related to the growing economic prosperity engendered by the kelp trade and the political ambitions and social aspirations of certain merchant-lairds.

The overseas trade of Orkney was transformed during the eighteenth century by the expansion in the kelp industry. By burning kelp seaweed an alkaline ash was produced; this was a source of iodine and potassium salts, and was used in industrial processes such as glass and soap making. After the first sale of a cargo of kelp from Orkney in Newcastle in 1722 the industry rapidly expanded to form a staple of the Orkney economy; between 1740 and 1760 the price averaged around 45/- per ton and produced an income of about £2,000 annually. War and protective tariffs which excluded foreign sources of alkali (Spanish barilla and American potash) increased demand for Orkney kelp and prices and income rose steadily; between 1760 and 1770 prices averaged 4 guineas per ton and produced an annual income of about £6,000; during the American War prices rose to around £5 per ton giving an annual income of around £10,000; between 1780 and 1793 an average price of £6 per ton produced an annual income of about £17,000 and in the war years after 1793 average prices rose to £7-£10 per ton and at times rose as high as £20 per ton.[67]

By 1780 the economy of Orkney was totally dominated by the kelp trade; profits from kelp were twice as high as the total income from rents on the islands and six times greater than the total value of agricultural products.

The profit margins in the kelp trade were enormous; it demanded little expenditure, after production, shipping and marketing costs about 60 per cent of the sale price was clear profit. Between 1720 and 1790 the value of kelp producing estates rose between seven and eight fold.[68]

The direct influence of the kelp trade on Orkney's timber trade with Norway was limited; timber was used for handles for sickles, rakes and spades, and also for the wooden carts which the kelp trade introduced to the islands.[69] However, the indirect influence of kelp on the timber trade was enormous.

The substantial profits made by Orkney landowners from the kelp trade were treated as disposable income, because the trade demanded little investment.[70] Merchant lairds such as Dr.Thomas Balfour of Sound and William Watt jnr. of Skaill undertook extensive building programmes with their kelp wealth and so used considerable amounts of imported timber. After buying the estate of Sound on Shapinsay in 1784 Balfour built himself a Georgian mansion at Cliffdale; he also built a water-mill and windmill and erected 'between 20 and 30 new houses' for the estate workers at Elswick. In 1788 Balfour purchased a town house, 'Tovnigar' in Kirkwall, from his uncle and had it extensively refurbished and he also provided timber for work on the estates of other members of the Balfour family, including Trenaby, Newark and Huip.[71]

William Watt jnr. owned Skaill, which was considered the finest laird's house on Orkney. Although he imported a considerable amount of timber he was actually his own best customer; he spent an average of £128. annually improving his estate at Breakness and in 1792 approximately one-third of the timber imported by the family business was used for building work at Skaill.[72] One historian has noted:

> Watt had an insatiable greed for landed property which greatly annoyed his brother Alexander who felt he was paying far too little attention to the family business and using its finances for his personal aims and gains.[73]

The extensive building work carried out by Orkney lairds was linked to their need for social prestige; Dr.Thomas Balfour had married a daughter of Earl Legonier, one of George III's favourites and a leading member of

the British Army. Balfour's brother John was an Indian nabob and friend of Pitt and Henry Dundas. The Balfours also had political ambitions and in 1790 John stood successfully as the lairds' candidate against the local rule of Dundas of Kerse, the holder of the Earldom estate.[74] With social prestige and political ambition came the need for respectability - a major factor in the decline of smuggling. In 1784 Dr.Thomas formed the 'Association for preventing the Progress and Increase of the Pernicious Practise of Smuggling in these Islands'.[75] However, there was a clear generation gap and Balfour's attitude brought him into direct conflict with his uncle, Thomas Balfour of Huip.[76]

Dr.Thomas Balfour used his kelp wealth to purchase several ships; he owned a fleet of twenty fishing boats and four brigs and four sloops.[77] By the latter part of the century Orkney had a fleet of approximately thirty vessels engaged in coastal and overseas trade.[78] Most of these vessels were sloops of between thirty and sixty tons burden; they were usually built in Orkney or in Leith. For example, William Wards of Stromness built several vessels for Balfour and Watt; the Margaret of 40 tons burden was built for Watt and several partners in 1783 for £318. while in 1767 the William, a fir bottomed, 46 tons burden, square sterned sloop was built by Alexander Sime in Leith.[79] Orkney shipbuilders were capable of building larger vessels; in 1787 the Resolution, a square-sterned brig of 111 tons burden was built at Grain, near Kirkwall. During 1788 the Resolution made two trips carrying deals from Dr.Thomas Balfour to the Liverpool Quakers and timber merchants Rathbone and Benson.[80] The deals came from the wreck of the Nancy, stranded on Orkney in May 1787 on a voyage from Christiania to Liverpool.Balfour often purchased wrecked cargoes cheaply at roups on Orkney and then sold them to timber merchants such as Heywoods of Liverpool and, having made their acquaintance over the Nancy, Rathbone and Benson.[81]

After its two trips with timber to Liverpool the Nancy never traded from Orkney again; it carried cargoes to and from Leith or Liverpool and the North Sea and Baltic ports of Gothenburg, Bremen, Stockholm and St.Petersburg. It was not simply the size of the Nancy which excluded it from trading out of Orkney; while kelp wealth allowed the merchant lairds to buy themselves a fleet of ships, the Orkney economy could not

provide enough business itself to sustain the vessels. Ships' captains and owners sought out freights between any of the ports in the Baltic and North Sea area, but the Norway to Ireland trip was particularly popular: during 1785 the Peggy and Isabella carried cargoes from Orkney, Trondheim and Konigsburg to Leith, from Trondheim to Konigsburg and Drogheda, and from Leith to Orkney.[82] However, random freights were often difficult to find; in 1785 the Peggy and Isabella's captain and part-owner, William Hewison noted from Trondheim:

> there is above 50 sail arrived here from England,Ireland and Scotland with grain, there is so many small vessels here at present that there is not any freights to be got nor deals to purchase for monie.[83]

When Orkney-owned vessels did carry cargoes to or from their home ports the kelp trade was considered far more important than grain exports or timber imports; in 1783 when captain Hugh Slater of the William was beginning a return freight to Trondheim Watt told him, 'we recommend you to make all the dispatch possible as we will have a cargo of kelp ready for you long ere you return'.[84] Again, in 1784 Watt instructed Slater:

> You will proceed with the sloop William which you command to Bergen in Norway and deliver your instructions and letter to William Farquhar of Bergen who will ship a cargo of wood on board of said sloop for us with which you are to proceed straight to Kirkwall road in order to enter your cargo and discharge the sum. We beg that you make all the dispatch you possibly can as the season of the year is far advanced and the kelp season will be far advanced ere you return - be sure to take nothing of contraband and make no stop until you are here.[85]

Watt's letters suggest that Orkney vessels touted for any coastal or overseas freights in Newcastle after delivering their cargoes of kelp; only as a last resort would they ship coal to Bergen and return home with timber.[86]

The level of Orkney's timber imports during the eighteenth century can be traced from the Kirkwall port books which exist for the years from 1743 to 1795.[87] The following table shows the annual import of Ordinary deals, the most important form of softwood timber brought into Orkney. The table also shows the number of deals (per dozen) arriving from Bergen; from other Norwegian ports; and from elsewhere, as well as the number of deals arriving from wrecks as salvage. The total number of timber -carrying vessels is recorded, and also the number of vessels arriving with timber from Bergen.

Orkney imports of deals, per dozen, 1743 to 1795.

	Source of Deals					No. of Vessels bringing timber.	
	Bergen	Other Norwegian ports	Elsewhere	Salvage	Total	Bergen	Total
1743	30	21	0	0	51	1	4
1744	10	0	0	0	10	1	2
1745	10	0	0	0	10	1	1
1746	22	490	0	0	512	2	4
1747	10	10	0	0	20	1	2
1748	50	10	0	33	93	4	6
1749	50	0	0	0	50	5	5
1750	47	40	0	0	87	4	5
1751	32	10	0	0	42	1	2
1752	0	17	0	0	17	0	3
1753	36	0	0	0	36	1	1
1754	70	0	127	0	197	3	6
1755	145	0	95	0	240	5	7
1756	100	0	13	0	113	5	6
1757	13	0	0	0	13	1	1
1758	50	110	0	110	160	2	3
1759	145	0	60	0	205	6	7
1760	25	0	0	0	25	1	1
1761	0	0	1	206	206	1	2
1762	80	0	48	48	128	3	4
1763	127	0	0	0	127	4	4
1764	181	138	20	0	339	8	11
1765	229	0	69	0	298	7	9
1766	115	0	0	0	115	2	2
1767	232	0	0	0	232	4	4
1768	292	0	40	40	332	7	8
1769	285	0	0	0	285	7	8
1770	142	0	36	26	178	4	6
1771	155	340	30	234	525	4	9
1772	128	6	5	5	139	4	6
1773	203	60	36	36	299	6	8
1774	140	306	18	324	464	3	5
1775	175	0	10	0	185	5	6
1776	297	10	523	523	830	5	8
1777	405	0	0	0	405	9	9
1778	70	0	0	0	70	3	3
1779	210	0	5	5	215	3	4
1780	175	0	0	0	175	4	4
1781	428	0	0	0	428	7	7
1782	353	0	30	30	383	7	8
1783	160	0	0	0	160	2	3
1784	278	0	0	0	278	4	5
1785	178	120	868	808	1066	6	6
1786	563	0	0	0	563	6	6
1787	80	20	54	20	154	2	4
1788	347	22	176	22	545	7	9
1789	616	316	127	316	1059	10	13
1790	320	0	100	8	428	4	6
1791	131	0	268	235	399	2	4
1792	287	0	231	9	518	4	9
1793	240	0	147	43	387	3	6
1794	211	0	249	0	460	3	7
1795	0	10	52	62	62	0	3
1796	216	0	72	0	288	4	5

Although there were substantial fluctuations in the annual levels for deal imports into Orkney the figures provided by the port books do suggest a series of ever increasing rises in demand; during the early 1750's; the mid to late 1760's; the early to mid-1770's, and from the late 1780's onwards. However, care must be shown in using these figures; the total for deal imports includes cargo landed from striken vessels and as much of this was then re-shipped elsewhere the figure does not accurately reflect economic demand for timber from the Orkney islands alone. However, the table also shows how much timber was salvaged in each year. So, in 1776 the annual total includes 280 dozen deals from the wreck of the Baltic Merchant and 243 dozen from the Esquitzen. Of the 523 dozen salvaged deals 376 dozen were re-shipped for sale in Dublin.

A comparison of both the number of deals and vessels arriving from Bergen against the total figures for deals and vessels indicates the continuing dominance of Bergen as Orkney's main supplier of timber. Indeed, by including salvaged deals and vessels within the totals the table actually underestimates Bergen's dominance. Bergen's position was enhanced during wartime, between 1776 and 1783 only two vessels other than wrecks provided timber from ports other than Bergen, and in each case the small amount of timber would indicate a passing vessel. At times random sales were actually recorded in the port books; in 1756 the captain of the Olive from Danzig sold 11 dozen deals to buy provisions, while in 1746 the captain of the Jean of Glasgow (sailing as the Christian of Molde) sold 200 dozen deals to pay his expenses and duties after an unsuccessful attempt to sail off without his Norwegian supercargo. Although it was standard practice for Orkney owners to allow their seamen the liberty to purchase 3 dozen deals on the Norway trip these deals must have been included as part of the main cargo as they are never mentioned.[88]

Just as the kelp trade encouraged the import of timber in general into Orkney, so another expanding inudstry led to the development of an alternative source of deals: the linen industry, and its demand for flax, brought in an increasing amount of deals from St.Petersburg.[89] The first cargo of Russian deals arrived in 1754, but their major impact took place after the end of the American War; between 1785 and 1796 16 vessels brought in 1,021 dozen deals from St.Petersburg as opposed to

47 vessels from Bergen with 3,189 dozen deals.[90] Moreover, Russian deals were larger and of higher quality than those sent from Bergen.

The accuracy of the statistical evidence provided in the Orkney and Bergen port books can be established through a comparison with the merchants' accounts available in the Orkney Archives. Between 1777 and 1790 ten cargo manifests provided by Alexander Wallace and William Farquhar in Bergen are extant in the papers of Dr. Thomas Balfour and William Watt.[91] The table below shows the deals contained in each cargo as it is listed in each source.

Date	Vessel	Kirkwall port book	Bergen port book	Merchant's account
1777	James	4.3.0 (g.h.)	54 dozen	50 dozen 8ft deals
				10 " 10ft "
				5 " 12ft "
1783	Betty	6.0.0. (g.h.)	60 dozen	45 " 8ft "
				9½ " 10ft "
				16 " 12ft "
1787	Skirmish	1.3.18 (g.h.)	57 dozen	60 " 8ft "
		(6.0.0)cuts		90 " 10ft "
1788	Betty	1.2.4. (g.h.)	75 dozen	109 " 8ft "
				4 " 10ft "
				2 " 12ft "
1788	Skirmish	(6.1.14)cuts (g.h.)	87 dozen	69 " 7ft 11in
1789	Pomona	3.0.17 (g.h.)	39 dozen	8½ " 8ft
		(2.0.2)cuts		16½ " 10ft
				20½ " 12ft
1789	Pomona	4.1.0 (g.h.)	224 dozen	185 " 8ft
		(18.2.0)cuts		34½ " 10ft
				26 3/4" 12ft
1789	Betty	1.1.0 (g.h.)	54 dozen	56½ " 8ft
		(5.2.0)cuts		2½ " 10
				12 " 12
1789	Brothers	8.1.0 (g.h.)	214 dozen	185½ " 8ft deals
				10 " 12ft "
1790	Pomona	(26.1.0)cuts (g.h.)	260 dozen	266 " 8ft "
Total		526 dozen	1,124 dozen	1,293¼ dozen

From the combined totals of the ten timber cargoes it is clear that the Bergen port books provide a reasonably accurate (87 per cent) measure of the true size of the ten cargoes. However, the Kirkwall port books only record the arrival of 41 per cent of the actual deals imported. Moreover, it was commonplace for Orkney merchants to claim falsely that their cargoes were Cuts of deals rather than Ordinary deals to further reduce the duties to be paid. These figures cast serious doubts on any attempt to interpret the Kirkwall port books annual figures, especially as the individual entries vary so much in their accuracy; for example, the 1783 entry for the Betty is 85 per cent accurate, but the 1788 entry for the same vessel is only 13 per cent of the true cargo.

The detailed correspondence which has survived in the papers of William Watt jnr. and Dr.Thomas Balfour provides a remarkable insight into the nature of Orkney's overseas trade in the latter part of the eighteenth century and compares well with the Traill papers from the early eighteenth century used by Hugh Marwick in Merchant Lairds of Long Ago .[92]

As we have seen, vessels owned by Balfour and Watt operated extensively outwith Orkney's trade nexus. However, in commercial activities linked to Orkney both Balfour and Watt's overseas trade was dominated by the exchange of grain or coal for timber from Bergen in co-operation with Alexander Wallace and William Farquhar, two Scottish merchants based in Bergen. In isolated cases, usually when trade links were disrupted by war, Balfour and Watt used other merchants including Herman Hoe in Trondheim, Bernt Scollay in Bergen and Gilroy and Milne in Christiansand.[93] For example, in 1781 Gilroy and Milne bought shares in one of Watt's ships which became the Mercurius of Christiansand, and so could sail as a neutral vessel.[94]

From the mid-eighteenth century onwards an alternative market for Orkney's grain developed, reflecting the poor quality of the crop; considerable quantities of bere were exported to Cadiz and Lisbon as feed for mules and asses.[95] However, neither Balfour nor Watt were involved in this trade.

Their connections in Bergen provided Balfour and Watt with a constant stream of information on the state of the grain market; for example, following the peace treaty between Sweden and Russia in 1790 Balfour was told that the price of grain was falling as Baltic supplies arrived.[96] Again, in 1788 Wallace pointed out that the price of bere had fallen to 10 stivers

per barrel after the arrival of Danish vessels, but the following year he wrote:

> prices will keep up, there being little on hand and the demand from the Country will continue all summer. Bere if sound would now fetch 16 or 17 stivers per barrel.[97]

Wallace and Farquhar provided their Orkney correspondents with information on timber, on current prices and shortages in specific items. For example, in Nov. 1788 ramble was difficult to procure, but in June 1789 8 feet 2 inch deals were scarce and Wallace filled the vessel with ramble and hoops.[98] Although much of this detail was provided simply to allow Watt or Balfour to decide on their orders, they could use this knowledge to exploit the Orkney timber market; for example, in 1791 Wallace warned Balfour that another Orkney vessel, the Batchelor, had arrived in Bergen and as it was 'returning with wood it may obstruct the sale of yours'.[99]

Balfour and Watt maintained Current Accounts with Wallace and Farquhar; the sale of imports into Bergen, such as coal or grain, credited to these accounts, while the cost of timber exports was debited. Little actual payment, either in the form of cash or bills of exchange, took place and the accounts ran from year to year. One reason for this form of running account was the manner in which grain sales took place in Bergen; Wallace and Farquhar did not usually purchase grain themselves, but rather acted as agents for Orkney merchants. Parcels of grain were sold with up to three months credit. So in 1788 Wallace told Balfour that his account had been credited with Rd 532 for his grain and debited Rd 287 for timber, and that his Current Account balance stood at Rd 90 to his credit. However, Balfour's grain could only be sold at a long date for payment. As the sales of grain usually exceeded the cost of timber the surviving accounts show that the cost of freight and wages was often met in Bergen and then debited against Watt's or Balfour's accounts - a technique which often balanced the account.[100] Shipments of grain and timber were often shared between several Orkney merchants; in such a situation methods of payment became increasingly complex; bills of exchange were used, but the distance of both Bergen and Orkney from major financial centres made it difficult to discount foreign bills of exchange, a situation made even more difficult by the decline in Bergen's

trade with other parts of Britain. In 1788 Will Farquhar wrote:

> I see no possibility of getting any draft on Britain, trade between said Country and ours being now quiet dull, this is in case you may not find speculation for ordering goods from here.[101]

To overcome their financial problems Bergen and Orkney merchants established complex financial networks in which Orkney merchants used each others credit balances. So, for example, in 1783 David Dreaver paid Farquhar for timber using credit owed in Bergen to William Watt.[102] In 1788 when Farquhar was owed money by Thomas Traill he wrote:

> I sincerely wish you could find an opportunity of assigning on me to one or other of your Country for what Ballance I am due.[103]

The situation was well summarized in a letter from Alexander Wallace to Dr.Thomas Balfour:

> There are no Bills to be gott on Great Brittain, the only way is to remitt in Dutch bills, Mr.Farquhar tells us he has had orders from one Friend in the Orkneys to pay his money to another, by which means he has nothing to do with the Exchange.[104]

The correpondence between Bergen and Orkney not only allows us to assess the accuracy of statistical sources, but also shows the great variety of items carried in timber cargoes from Bergen. The following manifest shows one cargo shared between several Orkney merchant lairds in 1789.[105]

Invoice of Trees double dales rambles etc shipped on board the Brothers of Kirkwall Capt John Robertson by order for account and risque of Messrs William Watt jnr. and co. Alex Logie and concerns merchants there

4 doz 14 ell trees	@ 2½Rd		10Rd
9 1/12 doz 12 ft 3 inch double dales	@ 3¼Rd		29.3.1.
1 doz ditto 2 inch ditto	"		2.
5 1/3 doz 8 feet 3 inch ditto	@ 1 5/6Rd		9.4.7
150½ doz ditto 2 inch ditto	@ 1 1/6Rd		175.3.4.
30 doz ditto ditto	@ 1 1/12 Rd		32.3.0
17¼ doz handspikes	@ 18 stivers		6.2.6½
36 doz harrowbills	@ 6 "		4.3.
1 doz large wooden bowls			1.3.
1 doz ditto ditto			1.1.4
1 doz ditto ditto			1.
12 doz ladles	@ 6 stivers		1.3.
2 doz shovels	@ 24 stivers		1.
1 doz canns			3.
1 hundred hazelcutts			1.
½ ditto ditto			1.2.
87 bundles hoops	@ 12 stivers		21.4.4.
43 waaghs bark	@ 10 "		8.5.6
3 boats			7.
2 ditto			5.1.4
1 ditto			2.3.4
paid for sawing the 8 feet dales	@ 1 stiver		3.5.4
clamping of deals	@ 1 "		6. 3½
4 doz oars	@ 1½Rd		6.
duty, tenth,lastage mony,stampd paper for entry and with customhouse write mony			94.4.4
Commission and brockerage 2½ per cent			10.5.2
		Rd	445.3.

½ whereof is 222 Rd 4.4.stivers at W.Logies debit
¼ ditto is 111 Rd 2.2 " at Messrs Watts Dt
1/8 ditto is 55 Rd 4.1 at Mr.Gillies
1/8 ditto is 55 Rd 4.1 at Wm Robertson

Bergen 8 July 1789

Errors Excepted Will.Farquhar

The Brothers cargo, in common with Orkney's timber trade in general, was dominated by imports of Ordinary deals, specifically by 8ft x 2in. deals, the standard size of deal produced in Bergen. As timber cargoes from Bergen contained a great variety of items the cost of freights was calculated by translating each item into their proportion in relation to 8ft x 2in deals; so for example 10 barrels of tar were equal to 5 dozen deals and 10 dozen handspikes converted to 4 dozen and 2 deals.[106]

Deals could be used for many different purposes and 'double' deals of 2 inches and 3 inches in thickness had the added advantage that they could be cut again if required. On Orkney deals could be used in shipbuilding - Watt supplied William Wards and his son, the carpenters and shipbuilders in Stromness.[107] While in 1778 William Laing of Harston asked Watt:

> have you any deals as I am going to have a little boat made, shall esteem it as a favour if you will save me ten or eleven double deals if you have them.[108]

With regard to housebuilding, C.Alison in the parish of St Andrews sent Watt a detailed list of his requirements:

> I will need 3 spars, 2 dozen single deals, one dozen 8ft deals 3 in thick and 3 dozen 12ft deals 3 in.thick. Tell Robert Nicolson when he sets them aside to put some mark upon them that cannot be erased and my name.. it is for lathing and couples to a house 20ft long and 12ft broad within walls.[109]

Apart from the common place-name 'Stove' no evidence exists in Orkney of the import of 'stock-stove' houses; that is houses in 'knocked down' form, manufactured in Norway and then re-assembled on site. This type of house was exported from Norway to Shetland.[110]

Orkney did import boats from Norway in 'kit' form. In 1773 James Fea wrote to William Watt jnr and placed an order for this type of vessel:

> you'll please commission on account of Mr.Henry Pollexfen jun. and myself four boats for fishing with on the coast of Zetland,

> those of the largest kind of six oars. The common place purchasing them is Geirsound, but most are commonly sent to Bergen for sale. They must be brought home in boards and numbered.[111]

Apart from housebuilding and shipbuilding the Brothers cargo met the needs of an agricultural community; 'trees', roughly cut timber balks had a variety of uses, in 1787 Dr.Thomas Balfour was asked to order his captain:

> to buy for me at Norway a fir tree twenty four feet long, the use I am to make of it is a ladder for my house.[112]

While most of the items in the Brothers cargo are self-explanatory, bowls, ladles, shovels etc., some are more obscure, handspikes were wooden bars used as levers, especially on ships. Harrowbills were the teeth in rakes or harrows- harrows were dragged over newly ploughed land to break up clods. Hazelcutts are particularly interesting, as a soft, easily worked wood hazel was useful for tool handles and walking sticks. Hazel stems were also used to form hurdles: woven fencing for protecting gardens and livestock, and hazel stems were used to make creels and baskets and to support thatch or turf roofing. In the Highlands of Scotland hazel was believed to have supernatural powers; it protected cattle from illness and was used when divining for water.[113]

During the course of the eighteenth century Orkney's timber trade underwent several changes; the level of timber imports increased several-fold and shipping patterns altered. In the early eighteenth century vessels from the Firth of Forth dominated Orkney's timber trade and a typical voyage saw timber purchased in Bergen with the proceeds of sales of Orkney grain, but disposed of in Leith because demand for timber was so limited in Orkney. By the latter part of the century the shipping pattern had changed; vessels were Orkney-owned and either completed a return trip between Orkney and Bergen with cargoes of grain and timber, or followed a triangular pattern, sailing with kelp to either Newcastle or Leith and then coal to Bergen before returning home.

However, throughout the eighteenth century Orkney's timber trade remained centred on Bergen and the import of Ordinary deals. As such, in common with several other small, northern ports, Orkney maintained the traditional pattern of the Scottish timber trade. Although Orkney's imports expanded, the other elements in the great structural shift in Scotland's timber trade were missing: the geographical shift eastwards into the Baltic, and also the change in the form of imports from deals to Fir timber. Orkney did begin to import deals from St.Petersburg, but in the 1790's the only Memel Fir timber to arrive in the islands was salvage after a wreck. Dr. Thomas Balfour used it to build a mill. Accessibility was an important reason for continuing links with Bergen, as was the grain-growing economy perpetuated by the system of payment in kind to superiors - an economic system which was to be maintained until steam navigation made it possible to export live cattle.

It has been suggested that during the latter part of the eighteenth century Orkney was a distant economic region or 'nation'.[114] However, from this study of the development of a leading sector in Orkney's overseas trade it is clear that the islands were heavily dependent upon both Scotland and England for their economic well-being. In the early part of the century Scotland provided the vessels which carried Orkney's exports, while Leith formed the major market for timber cargoes purchased in Bergen for Orkney grain. In the latter part of the century the ships may have belonged to Orkney, but both they and the very demand for timber were the product of wealth created by the kelp trade with Britain's east coast ports.

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CHAPTER SIX

SCOTLAND'S FIR TIMBER TRADE WITH RUSSIA

By the latter part of the eighteenth century trade with Russia was essential to Scotland's economic prosperity. Russia was Scotland's most important trading partner in Continental Europe, supplying a series of raw materials which were indispensable to the Scottish domestic economy. Imports from Russia in 1770, for example, valued at £309,739, were almost exactly double the value of those from Holland, the next largest continental supplier of Scottish imports. Imported items from Russia included substantial amounts of raw materials such as iron and timber, but the total cost was dominated by flax and hemp; in 1790 Russia sent 3,550 tons of flax and 2,040 tons of hemp, worth £159,751 and £34,682 respectively, both imports were necessities for the flourishing Scottish textile industry.[1]

The important role played by Russian trade in the Scottish economy at this time was all the more impressive because of its rapid growth; at the beginning of the eighteenth century Scottish trade with the nether regions of the Baltic was minimal. Indeed, T. C. Smout saw the failure of Scottish shipping and merchants to develop trade with Russia as a telling indictment on the nation's commercial abilities and an analogy for the 'limited horizons' of the Scottish economy in general.[2]

Chapter three shows the important role of Scottish imports of cut timber deals and battens from Russia from the mid-1760's onwards. The expansion of this sector of the timber trade can be traced in the Inspector-General's annual reports. Unfortunately, it is only with difficulty that we can trace the early expansion of trade between Scotland and Russia using official Scottish trade statistics. These only begin with the annual reports of the Inspector-General of Exports and Imports for Scotland, established in Edinburgh in 1755. By this time trade with Russia was already well established: in 1755 Russia provided 732 tons of flax (£33,000), 151 tons of hemp (£2,567), 135 tons of iron (£1,354) and 243 loads of Fir timber (£228). However, the Danish Sound Toll Register shows that imports of Fir timber did not have an impact before the early 1750's. Only irregular cargoes of Russian Fir timber appear during the 1740's.[3]

The north-east of Scotland, and in particular the port of Montrose, had a long tradition of personal, military and mercantile links with the Baltic; Patrick Renny of Montrose settled in Riga as a flax-exporting merchant in the early seventeenth century. He was joined in 1662 by two Renny brothers, Thomas and Andrew. Half a century later Andrew was still there, and in 1709 as one of the city's most distinguished citizens he handed over the keys of

the vanquished city to Peter the Great. He was succeeded in business by his nephew, Patrick Renny, who in 1723 is recorded selling two shiploads of Rakitskie and Marienburg flax to the Guildry of Dundee. Members of other Montrose families, such as the Ouchterlonies, also established trading-houses in Riga. However, when John Ouchterlony retired from Riga in 1736 trade links between Scotland in general and Baltic Russia were still in their infancy.[4]

Close mercantile links between Scotland and Russia only became firmly consolidated from the 1740's onwards with the increase in demand for Russian flax and hemp by Scotland's expanding linen industry. The development of large-scale, integrated linen manufacturing operations such as Wallace, Fardyne and Company, founded in 1739 and the activities of the British Linen Company from 1746, led to an upsurge in demand, as did demand from sailcloth and cordage manufacturers, for example the Gourock Ropework Company.[5] Purchases of hemp and flax from Riga, and especially from St Petersburg, were encouraged by increasing freight rates following the outbreak of war in 1739 - for Russian hemp and flax, though much inferior in quality to Danzig and Konigberg supplies, was also cheaper.[6]

Until the early 1750's flax and hemp were the only goods imported into Scotland from Russia; most vessels did carry some bar-iron, freight charter parties for flax importing vessels often included the provision of, 'as much iron as will be absolutely necessary for Kiltage.' However, this bar-iron only paid a minimal freight charge; it was included only as ballast or 'mast-fasting' to help stabilize vessels loaded with bulky but light parcels of flax and hemp. Until 1752 importers such as the British Linen Company had some difficulty in disposing of Russian bar-iron, and were quite prepared to sell it at first cost without reckoning on freight and port charges.[7] At this time Scotland imported all its iron from Sweden, and in particular from the Swedish west coast port of Gothenburg. However, in 1747 the Swedes attempted to exploit their European-wide monopoly by restricting output with the formulation of the Iron Bureau (Jernkontoret).[8] As both demand and costs for iron increased in the 1750's so it became profitable to import more distant supplies from Russia. For England, Ralph Davis has indentified 1752 as a 'transitional year in the Russian iron trade', the year in which iron began to pay regular freight charges because the scale of importation

to Great Britain was such that iron was imported as a cargo in itself, not mostly as ballast.[9]

The early 1750's also saw the first direct importation of Russian Fir timber into Scotland. The first vessel to bring this cargo into Leith was actually a Russian ship, the Klee Blat from Riga, captain Claus Fuhl. The ship arrived in October 1751, and offloaded 154 loads of Riga Fir timber (1 load=50ft) for the Edinburgh private banking firm, Messrs. Fairholme.[10]

The specific term 'Fir timber' was used by Scottish customs officers to describe imports of squared softwood timber with sides of 8 inches and over, but fir timber in a general sense, as opposed to the sawn products such as deals and battens which dominated Scottish imports, arrived under a miscellaneous series of descriptions including middle balks (sides of 5 to 8 inches), small balks (sides of less than 5 inches), great masts (diameter over 12 inches), middle masts (diameter 8 to 12 inches), small masts (diameter 6 to 8 inches), and spare (4 to 6 inches in diameter).[11]

In the Scottish economy fir timber in its more general sense was an essential item; in shipping as masts and spars, in the mining industry as waggon rails and pit-props, and particularly important as joists, supports and rafters in house building. Other uses for fir timber defy catagorization; in 1787 John Traill of Westness in Orkney sent the following letter to Thomas Balfour whose sloop was leaving for Bergen:

> Please give orders to John Sutherland master of the Skirmish to buy for me at Norway a fir tree twenty-four feet long, the use I am to make of it is a ladder for our house.[12]

The arrival of the Klee Blat in 1751 with its cargo of Fir timber balks from Riga provides a useful symbol for fundamental changes which were taking place in the Scottish timber trade in the mid-eighteenth century. In his examination of North European timber exports to the British Isles at this time S-E. Astrom outlines two major changes in the structure of the trade; firstly, Norway lost its position as the major supplier of timber in favour of a series of more distant Baltic and White Sea ports, and secondly, the composition of timber cargoes changed with the increasing demand for square balks of Fir timber instead of cut timber deals and battens.[13]

In Scotland in the 1750's the ubiquitous Norwegian deal had already lost its predominant position in the timber market. In the late seventeenth century Norwegian timber supplies, almost exclusively cut timber deals, had totally dominated the Scottish market, but from the 1730's onwards Gothenburg, on the west coast of Sweden, developed into a serious rival to the various Norwegian ports. By 1755 when 128 vessels are recorded arriving in Scotland with 12,128 dozen deals from fifteen different Norwegian ports Gothenburg alone sent 78 ships (almost all Scottish) with 9,219 dozen deals. Nevertheless, although a Swedish rather than a Norwegian port was Scotland's major supply centre for timber, the western littoral of Scandanavia was still the geographical source of Scottish imports and deals still dominated the market.[14]

The official trade statistics for timber imports into Scotland in 1755 show little sign of the type of change outlined by Astrom; Scotland imported 22,630 dozen deals from Norway and Sweden, and only 640 dozen from Russia, Prussia, Poland and Germany combined. Also, Norway led as a source of Fir timber balks, sending 1,600 loads compared to 243 loads from Russia and 113 loads from Germany. The Official values provided for Scottish timber imports in 1755 are open to serious criticism, but they do provide a useful indication of the structure of the trade in the light of Astrom's observations; total deal imports were worth £20,943 compared to £1,834 for Fir timber balks, and imports from the Baltic cost only £2,065 as opposed to £20,712 for timber imports from Norway and western Sweden.[15]

From the tables and graphs of imports of Fir timber balks into both Leith customs precinct and Scotland as a whole it is apparent that the shifts described by Astrom took place in Scotland during the years immediately after the conclusion of the Seven Years War in 1763. Until this change in the mid-1760's no general market for Russian Fir timber balks existed in Scotland. That is, the demand was so slight that Scottish merchants did not import a cargo of timber balks without a specific buyer in mind. The Dunbar merchants, Charles and Robert Falls outlined just that situation in 1747 in a letter to Lord Milton when a cargo of timber balks was required for building work at Inverary:

> we would not put it upon this footing but that (Russian) logs are seldom imported here, but when particularily commissioned, as not answering the sale of the country.[16]

The official statistics suggest that the expansion of demand for Russian timber in Scotland was both sudden and dramatic; in 1755 twenty-one ships arrived in Scotland from Russian ports, but only four vessels, all from Riga, offloaded cargoes of Fir timber balks- a total of 243 loads. By 1765 however, fifty-four ships arrived from Russia, and twenty of these brought in balks - 1452 loads, but Riga was no longer the major Russian source, the Baltic port had been supplanted by Onega on the White Sea - a round trip from Leith of almost four thousand miles.

Within the Scottish timber trade distance was an important factor; shipping costs, in the form of freight charges, were the single most costly part of the final market price of imported timber. For example, in 1751,the same year the Klee Blat began direct imports of Russian balks into Leith, a Scottish vessel, the Nanny and Jenny, carried a cargo of Riga timber into Dumfries. The importing merchant, James Corbet a town baillie, sold the timber for 15d per cubic foot, but of this a freight rate of 31/- per load, cost 7½d or 50 per cent. of retail cost (and incidentally almost double the timber's prime cost in Riga).[17]

As the letter from Charles and Robert Falls to Lord Milton suggests some Russian timber was already being sold in Scotland before direct imports began in the early 1750's. Bearing in mind the importance of distance in the timber trade it should come as no surprise that the prelude to the expansion of the 1750's was marked by the use of Danish ports on the western periphery of the Baltic, particularly Copenhagen, as entrepots for the shipment of cargoes of Russian timber to Scotland. Rather than the sudden shift indicated in the official statistics the re-orientation of the Scottish timber trade was a gradual process, and was already well under way by 1755. That year the Scottish port books recorded the arrival of ten Danish and Scottish vessels from the Danish ports of Copenhagen and Abenra, delivering a total of 539 loads of fir timber. This timber, which was actually from Riga, was included in the import ledgers as the produce of Denmark/Norway - placed in its rightful position it takes Russia's share of the Scottish fir timber market up from 12 per cent. to 38 per cent. in 1755.

The 1760's saw the development of a regular market for Baltic timber in Scotland; for the first time expanding demand from the building trade meant merchants could import a cargo of Russian balks without a particular buyer in mind, and still expect a fairly rapid turnover of their stocks. This position probably developed earliest in Leith with supply needs for construction work in Edinburgh's New Town; between 1764 and 1768 the Leith customs precinct recorded 25 per cent. of Scotland's annual average import of Fir timber. But by the end of the eighteenth century the demand for Fir timber balks was such that timber reserves held in various burgh timber stores or 'bushes' were bought and sold as speculative ventures without actually leaving the bush, simply as a reaction to expected seasonal demand.[18]

Before the 1760's expansion of the market there was no regular demand in Scotland for Russian timber; cargoes were only imported to meet a specific need - a situation in which speed of delivery was essential. Until the general expansion of trade between Scotland and Russia in the 1760's contacts with Riga were both minimal and time-consuming; a Scottish merchant wishing to import Russian Fir timber was easiest served by either sending a Scottish vessel to Copenhagen, or buying a cargo from one of the itinerant Danish captains who sailed down the British coast hoping to find a buyer.[19] It is not possible to trace the first indirect arrivals of Russian timber into Scotland as 'copenhagen fir'; Scottish port books are only extant from late 1742 onwards, however, these vessels were important in meeting Scotland's limited need for quality Russian balks - in the Leith precinct, for example, between 1743 and 1763 when the last such import was recorded, Denmark is given as the source in 29 cargoes of fir timber. As we have seen in 1755 Scotland imported only 243 loads of Russian balks directly in four vessels, but another 539 loads of so-called 'copenhagen' fir arrived in ten ships.

Under the Navigation Acts, specifically the Anglo-Danish Treaty of Alliance and Trade of 1670, extended to Scotland with the Union of 1707, merchants of either Britain or the Danish-Norwegian kingdom, could only ship to the other country the produce and manufactures of their own. In other words it was illegal for Danish or Norwegian vessels to carry Russian Fir timber directly from Russia to Scotland, and yet this was common practise. In 1754 one German and two Danish-Norwegian vessels were seized in Scotland

for carrying Baltic timber with false documents. The previous year a whole fleet of fourteen Danish vessels was seized in Liverpool with cargoes of Riga balks; the Danish-Norwegian envoy, Rosenkrantz, appealed to the British government that this trade in Baltic timber by his countrymen had been carried on unmolested for twenty years.[20]

Although it was illegal for a Danish-Norwegian vessel to import Russian timber into Scotland these passing sales supplied demand almost immediately and so were highly sought after in the absence of any reserve stock. For example, in 1749 with building work in progress at Buchanan and Inveraray representatives of both the Duke of Argyll and the Duke of Montrose attempted to purchase the same cargo of Russian timber from a Danish vessel.[21] The captain, from Abenra, was a regular visitor to the port of Greenock, and although his cargo was not of particularly good quality timber it still raised the expected retail price of 15d per cubic foot as the first import of Russian timber that season. The cargo was actually bought at the quayside by Allan Dreghorn, a Glasgow timber merchant, and then sold to Francis Crawfurd, a Glasgow wright employed as agent by the Duke of Montrose.[22] The transaction provides a useful insight into the pros and cons involved in buying Russian timber from passing Danes; Montrose gained a large quantity of Russian timber early in the building season just when his men could begin work, and without the financial outlay and season's delay involved in placing an order with Riga merchants, however, he also paid a high price for a cargo of timber of questionable quality.

By supplying the nascent Scottish demand for Russian timber Danish skippers may have provided a useful service, but they seldom won the respect of their customers; the Inveraray lawyer, James Campbell, wrote of another Danish skipper who promised Argyll a cargo of Russian timber and then sold it at Larne rather than sail up Loch Fyne:

> The Danes conduct now discovers him to be a disingenuous bold knave in giving the D. such a disappointment, and am greatly vext I should have introduced him to your lop., as for the ludicrous excuse of 'no water to carry his ship to Inverary', I conclude that the offer of a larger price is what tempted him to break bargain.[23]

The Edinburgh timber merchant, Robert Cormack, who with a son working in Riga as a timber exporting merchant, took none too kindly to these Danish interlopers, was even more specific about the drawbacks involved in buying an illicit Danish cargo of Russian balks - and with good reason. In 1754 Cormack arranged for the ligitimate shipment of a cargo of Russian timber from Copenhagen to Inveraray on board a Scottish vessel, the Agnes of Bo'ness, master James Younger. After considerable time, energy and financial outlay his sale was pre-empted by a passing Dane. Cormack's fury did little to improve his spelling, especially when Argyll's agent compared Cormack's prices (unfavourably) with the Dane's. Cormack replied:

> I never will tye myself down to a dains praice I know be sade experience at Leith that they bring nothing to Scotland but bade wood.. to be at al this charge that I might have honner of a good cargo and for that to tak dains praice wood (sic) be hard, to give good logs the praice of bade is not judged by any honest men that my Lord Milton pleas to nam - but for any thing I can sie I will not be fond to com this way again.[24]

To some extent the criticism of the quality of Fir timber carried by Danish vessels from the Baltic may be disregarded as sour grapes; after all it also came from Riga, and was subject to the strict 'bracking' system.

The growth of Scottish imports of Fir timber balks from Russia, and from Riga in particular, was not simply the result of the expansion of the Scottish market for Fir timber per se. Scotland's increasing import of Russian balks was rather the consequence of a changing pattern of demand: as the total market for Fir timber expanded, so there was also an increasing emphasis placed upon the need for supplies of balks longer, wider and of superior quality than Norway, Scotland's traditional source could provide.

In his testimony before a Parliamentary committee enquiring into timber duties in 1835 a London timber merchant, Henry Warburton, whose family business records stretched back to the mid-eighteenth century, detailed the qualities and importance of Fir timber balks from Riga:

> Riga, it is to be considered, prior to 1772, was the principal port in the North of Europe for supplying this country with squared logs of fir timber..
> Riga used formerly to be the port from which almost all the fir timber in the log, from 12 to 13 inches square, required for building and other purposes in this country, was imported. From 1757 to 1778, nine-tenths of all the fir timber 12 inches square, and upwards, entered as purchased or imported in the mercantile books I have above referred to as having consulted, is Riga timber. It has the valuable property for timber in the log, for the material out of which joists and girders are made, of being very rigid - of bending little under great weights. Moreover, it is very regularily squared, very straight, very clear of knots, straight in the grain, and very durable.. amongst the uses to which I have known Riga timber to be applied on account of its stiffness, and freedom from knots, is making the arms for carrying the sails of windmill.[25]

Warburton's high opinion of Riga balks was shared by Scottish timber merchants; in 1752 Robert Cormack insisted to Lord Milton that although more expensive than Norwegian timber Russian was better value as, 'Russ logs is squire like adice,' available up to 50ft. in length and, 'not a foot of a thousand blue wood but pure reid wood.' [26] In 1760 an Edinburgh lawyer, John Watson, ordered a cargo of fir timber, 'fitt for joisting houses' for Inveraray New Town, from Riga, 'the properest place for goods of that kind'.[27]

The precise quality and size of balks supplied in Riga was maintained by a strict 'bracking' system; officials sorted and stamped timber balks by quality and length. The standard of the Riga were second to none- perhaps because the official was personally (and financially) responsible for the graded quality of the timber from the time it was cut.[28] By contrast, in Norwegian ports no official quality control was organised, so individual merchants had to gain the confidence of customers by their own standards of sorting and grading.

By the mid-eighteenth century Norway, the traditional source of Europe's softwood timber supplies, was facing a crisis; timber resources, particularly those in the more accessable costal districts, were becoming seriously depleted. Norwegian suppliers had to draw upon timber in the more distant hinterland to provide the quality and larger sizes demanded by their customers; even then they were unable to compete with the size of timber Russia could provide. In August 1752 Baillie John Wilson sent Lord Milton a list of various types of timber balks and deals he could suppy for building work at Inverary. Norwegian timber from Arendal and Christiansand could only be had in sizes ranging from 14 to 16ft long and 7 to 10in. wide but Russian balks from Riga were available from 20 to 40ft. long and 12 to 14in wide. Wilson's letter provides a neat summary of the problems of quality, consistency and exhaustion of supplies which beset Scotland's traditional source of timber by mid-century, but he also implies that Norwegian merchants themselves had serious shortcomings:

> most of the Norway logs has a great deall of blew wood upon them, and tapers so much that before they are brought to a sqr. a fourth part of the wood must be hewen off, wheras the other (Russian balks) is all squard from end to end and nothing left but reed wood, and the factors in Sweden and Russia are men of greater character and stocks than the Norwegian generally are, for wee can allwayes depend upon a good cargo from the former but very rarely from the latter.[29]

Wilson goes on to point out the need to insist upon supplies of the larger inland timber, rather than the depleted resources of the coastal forests:

> the best they call upland and the worst lowland which are all blinded(sic) togither for the most part when sent to us, so that your lop. will plainly see how easy it is for them to impose upon us unless they are men of strict integrity which they cannot greatly boast off more than ourselves.[30]

In 1751 Charles and Robert Falls of Dunbar informed Lord Milton that, 'the wood of Norway may be had some cheaper, but then its inferior in quality and unless bespoke a long time before, can not be had of the exact dimensions.'[31] Apart from specific uses for smaller sizes of timber balks it was probably the lower price of Norwegian Fir timber that prevented it from being entirely surperceded by its Baltic rival.

The retail price of Fir timber in Scotland was directly related to the cost of transporting the timber to Scotland from its country of origin. In the early 1750's approximately half of the retail price of Norwegian and Russian balks in Scotland was taken up by shipping costs; during wartime when freight costs could rise dramatically this proportion was even higher. However, from the end of the War of the Austrian Succession in 1748 to the beginning of the Seven Years War in 1756 shipping costs, and, therefore, retail prices for timbers in Scotland, remained relatively stable.

On the west coast of Scotland fir timber balks from Norway retailed at between 10 and 12d per cubic foot, depending on the quality and length of the timber, while Riga balks were sold for between 14 and 15d per cubic foot. For the east coast of Scotland retail prices were proportionately lower, because of the lower cost of freight (the journey round the north and west coasts of Scotland was a different one and added approximately 350 miles to a sea voyage from Norway or Russia). On the east coast Norway balks cost only 9 to 11d and Riga timber only 13 to 14d per cubic foot.[32] This east/west price difference was explained by William Christie, a timber merchant and Provost of Stirling, in a letter to Francis Crawfurd, the wright in charge of building work for the Duke of Montrose at Buchanan, in March 1749:

> Norway to the Clyde, is vastly longer than to Alloa, and requires different winds to perform it, which makes it very precarious so he cannot and thinks none else can, furnish timber in Clyde under $\frac{1}{4}$ more than at Alloa. So the foot of wood, that costs 10d at Alloa, will be 12d at Port Glasgow or Greenock.[33]

A useful insight into the various proportions which made up the retail price of imported fir timber was provided in 1754 when Robert Cormack arranged two shipments of balks for building work at Inverary; the Agnes of Bo'ness brought in Riga balks purchased in Copenhagen, and a Danish vessel from Abenra delivered a cargo of Norwegian timber from Christiansand.[34]

Cormack included the following table to explain the prices he charged for each shipment:

Prime cost and charges (per cubic foot) of a cargo of timber from -

	Copenhagen	Christiansand
prime cost per cubic foot	6½d	5 d
duty and charges at port of origin	1½d	1½d
freight cost	5½d	4½d
duty, insurance and port charges in Scotland	1 d	1 d

By contrast, when James Corbet of Dumfries brought over a cargo of Russian balks directly from Riga in 1751 in the Nanny and Jenny, the shipment cost only 3½d. per cubic foot in Riga, but freight to the west coast of Scotland, a journey of almost 1,430 nautical miles, added another 8d. per cubic foot. [35]

As part of his evidence before the Parliamentary enquiry in 1835 Henry Warburton included a series of statistics on the cost of imports of timber balks from Riga between 1757 and 1766.[36] Although these figures are for shipments into London they also reflect the relative costs for shipments to the British east coast in general - the only notable difference was freight costs to London were usually a few shillings lower than to other east coast ports:

Riga timber costs, per load of 50 cubic feet, 1757 to 1766.

	1757	1758	1759	1760	1761	1762	1763	1764	1765	1766
Prime cost.	15/-	17-15/8d	14/10d	13/9d	20/4d	19/7d	16/5-20/5d	21/6d	19/-	18/1d
Freight & port charges.	28/8d	28/4-30/6d	30/11d	28/3d	30/4d	31/4d	33/2-20/4d	20/4d	20/4d	20/4d
Miscellaneous charges & insurance	1/7d	1/8d	1/2d	1/9d	1/6d	1/5d	1/9-1/6d	1/4d	1/8d	1/1d
Duty.	3/8d	3/8d	3/8d	3/8d	3/8d	3/8d	3/8d	3/8d	3/8d	3/8d
Total cost.	48/11d	50/8-51/6d	50/7d	47/5d	55/10d	56/-	55-45/11d	46/10d	44/8d	43/2d

The total cost provided in this table does not refer to the retail price of Riga balks in London, which was substantially higher, but to the total expenditure of the importing merchant; for example, with Russian Fir timber costing 1/1d on the east coast of Scotland in the mid-1760's Warburton's

figure of 44/8d would leave a Leith timber merchant with a profit of 9/6d for each load of Riga timber sold, or about one-fifth of his financial outlay.

From Warburton's evidence it is clear that shipping costs were the largest single input into the price of imported timber from Riga; the importance of the freight rate in determining the final retail value of a timber cargo from Riga is shown by the general parallel between fluctuations in the price of freight and the merchant's total cost, although the freight rate could vary from 33/2d per load at the height of the Seven Years War in 1763 to 20/4d after its conclusion, freight never accounted for less that 47 per cent. of total costs - and could reach as much as 60 per cent.

The table also shows that the prime cost of timber in Riga was of some importance, and could undergo substantial changes from year to year. In fact, over this period the prime cost of fir timber balks in Riga itself was relatively stable, but the cost to British importers could alter substantially according to the exchange rates for sterling and roubles in the Amsterdam money market.[37]

A specific Scottish example of the various costs involved in importing a cargo of timber from Riga, and the particular difficulties during wartime, is provided by the Duke of Argyll's import of Riga balks onboard a Swedish vessel, the Concordia, Captain Jan Berg in 1760. As we have seen, this shipment was arranged by the Edinburgh lawyer John Watson:

Invoice details for a cargo of 4188 cubic feet of Riga fir timber balks imported in the Concordia, Nov. 1760.[38]

Prime cost in Riga	£ 46. 10.	15% of total cost
Charges.	18.	
Commission at 4%.	2. 11.6.	
Total cost in Riga.	67. 1.6	21.5% " "
Freight,Riga to Gothenburg	49. 6.	16% " "
Sound toll.	1. 1.	
Port charges and duty in Gothenburg.	5. 6.	
'A present to the officers for saving the expense of loading and unloading at Gothenburg.'	3. 7.	
Insurance	6. 8. 6.	
Carnegy's commission at 2%	2. 12.	
Total payment in Gothenburg (includes Riga costs).	134. 14.	43% " "
Freight, Gothenburg to Inverary.	150.	48% " "
Port charges and cost of a pilot from Stromness.	14. 14.	
Import duties	11. 11. 6½d.	
Total cost to the Duke of Argyll	£310. 19. 6½d.	

When the Riga balks carried to Inverary onboard the Concordia were unloaded, George Haswell, Argyll's wright, noted approvingly, 'the cargow I think is the best that we ever had heir'.[39] Perhaps it was as well that the quality of the timber pleased Haswell, because it cost over 17½d. per cubic foot. In fact, at 11/- per load the prime cost of the cargo in Riga was somewhat lower than Warburton's figure, but Argyll was charged 57/8d per load for freight and port charges, an enormous leap from Warburton's equivalent figure of 28/3d even accepting the east coast/west coast difference.

The particularly high cost of freight for the Concordia's cargo in 1760 reflected the problems of organising shipping during a complex period in international relations in Northern Europe. In 1760 Britain, and her continental ally Prussia, was at war with Russia, and so Argyll's import of Riga timber was brought over in a neutral Swedish vessel. Indeed, the whole venture was organised via Gothenburg by George Carnegie, an important member of that city's Scottish mercantile community. However, while Sweden was an ally of Russia and neutral in the conflict between Britain and France she was at war in the Baltic with Britain's ally Prussia. So, as Carnegie pointed out, 'the freights on Swedish ships have been high for some time bypast, on account of Prussian privateers'.[40]

By the mid-1760's supplies from the Baltic in general, and Russian ports in particular, were becoming increasingly important in the Scottish timber market. In 1765 Russia sent 3,420 dozen deals to Scotland; although this figure was low compared to the 20,890 dozen deals from Norway and 13,970 dozen from Sweden it was a sign of things to come. Moreover, Scotland's import of Russian deals was concentrated in the lucrative Leith precinct which in 1765 took 53 per cent. of all deals imported from Russia. However, Russia was more important as supplier for the growing Fir timber market rather than Scotland's stagnating cut timber market. In 1765 Russia sent 1203 loads of Fir timber, slightly lower but more valuable than the 1308 loads imported from Norway. By this date there is no longer any confusion over Baltic Fir timber carried in Danish vessels, the last recorded shipment into the Leith precinct took place in 1763.

In the 1750's as the Scottish market for fir timber expanded so the physical horizons of the trade grew; as demand continued to increase during the 1760's so did the expansion of trade routes as Scotland drew upon more distant resources. By 1765 supplies for Riga were competing with other Baltic ports; Prussian and Polish ports sent 815 and 476 loads respectively. It seems clear that the much respected brack and quality of Riga Fir timber actually priced supplies from Riga out of the market. However, at this time Riga's main competitor was not another Baltic port but the newly developed White Sea port, Onega. In 1765 the individual port books for Scotland record a total of 12 vessels arriving from Riga

with 582 loads of fir timber, but Russia also supplied another 872 loads in only 5 vessels from Onega.

The development of Russian timber resources in the northern regions around Lake Onega and Archangel dated from 1754 when William Gomm, an English merchant in St Petersburg, purchased a twenty year monopoly from the Russian government on all northern timber exports. Gomm enjoyed several advantages over other timber exporters in Russia; not only the fact that timber and labour were particularly cheap in the north, but also open encouragement from the Russian government, in 1765 in an effort to improve his credit Gomm was appointed court banker, also his timber exports were granted very low tariff rates. Gomm's activities peaked in the mid- 1760's; by 1766 he owned 5 saw-mills in the Onega region and was building three more, in Archangel he owned three wharfs a saw-mill, rope and anchor works, a counting-house, a blacksmith shop and several warehouses. Gomm's activities in the north also included ship-building, for example, in 1764 to 1765 24 vessels from 300 to 500 tons burden were constructed. Between 1762 and 1767 Gomm sent 251 ships to England and Holland with timber, but after 1767 when Gomm's finances collapsed his own activities, and so those of the region in general, were severely curtailed - from 1769 to 1774 only 95 vessels took timber cargoes to England and Holland.[41]

Onega was an important source of both deals and balks in the Scottish market during the decade 1763 to 1772 as demand in Scotland increased with an expanding economy and the need for timber in building. However, with the financial collapse of 1772 the expansion halted, the building trade stagnated and the timber trade contracted. Much of Scotland's timber trade with Onega was organised by the Edinburgh merchant, James Inglis jnr.; in 1772 following the collapse of the Ayr Bank in Scotland and of Cliffords in Amsterdam Inglis noted, 'happy is the man who is least concerned in trade at present or for some time to come'.[42] Two years later Inglis was still informing his suppliers:

> the demand for timber in this country is greatly lessened within these last two years and by all appearance will still be smaller as every kind of building is entirely stopped.[43]

As the most distant source of supplies in a trade in which the cost of freight was of paramount importance, Onega was the first of Scotland's suppliers to suffer in the post-1772 contraction of demand. However, in the decline of the timber trade between Scotland and Onega the size of the vessels involved was as important as their relative cost. At a time when the average vessel arriving in Scotland from abroad was approximately 73 tons burden, and from Russia as a whole averaged 100 tons burden, the long and arduous trip round the Kola peninsula called for vessels of 400 to 500 tons burden (see Appendix 3) like the earlier expansion of Scotland's general trade with Baltic Russia in the 1750's the need for vessels of a size not readily available in the Scottish fleet helped tie the maritime economy in with that of the east coast of England.[44]

Even in prosperous years of high demand the timber market in Leith could only cope with one or two Onega cargoes each season; for example, one cargo which arrived in the Providence of North Shields, captain James Hutcheson, included not only 162 loads of balks, but also 62½ standard hundred deals and battens. Inglis was able to dispose of this cargo almost immediately, selling it to the Leith retail timber merchants, Tod and Stoddart, for 9½d per cubic foot for balks and £7 to £8 per standard hundred deals (excluding import duties).[45] In terms of both price and quality Fir timber from Onega competed directly with imports from the rapidly expanding port of Memel in Prussia, the product of both ports retailed at 11d to 12d per cubic foot between 1765 and 1775 on the east coast of Scotland.[46]

In 1773, the same year that he sold the Providence's cargo of timber, James Inglis jnr. also received another Onega cargo, onboard a Newcastle vessel, the Amity captain William Chapman. Neither cargo was actually ordered by Inglis, because of the depressed state of the market for Fir timber in Scotland substantial cargoes of the size imported from Onega were increasingly difficult to dispose of. Inglis' agent in Russia, the firm of William glen had received funds for Inglis following the wreck of his ship, the Constable Galley, near Reval in winter 1771. Glen and co. used the funds to purchase Inglis normal season's order of Onega

timber - in a letter to Captain Hutcheson Inglis explained the complex procedure involved in ordering an Onega cargo:

> I observe if you cannot get a freight to your liking, you propose to go to Onega on your own account. I am afraid you run a risk in so doing as all these cargoes are bespoke many months ago that is prepared for this season, and half the money lodged and paid at St Petersburg to the Trustees so that you have a chance of getting a bad cargo or none at all.[47]

Inglis then, received two substantial cargoes of Onega timber in 1773, a year of which he wrote,'there never was a time this twenty years that trade in general was so dull, the shipping in the river lies rotting for want of employment'.[48] While he was able to sell the Providence's cargo he could not sell the Amity's, even though he offered it to all contacts as far south as London - there was simply no demand. Inglis kept the cargo in the Leith bush and sold it off piecemeal, a process which took two years before the last of the timber was sold.[49]

The development of the Fir timber trade between Scotland and Russia in general was the product of an expanding market; as demand was growing in the pre-1772 period and quality was at a premium so the two Russian ports of Onega on the White Sea and Riga in the Baltic could compete with rival sources of supply in particular the Prussian port of Memel. However, when Scottish demand stagnated after 1772 the Russian ports were quickly abandoned in preference for Memel Fir timber.

One reason why Russian supplies could not compete with Prussian Fir timber concerned the manner in which trade with each country was financed. When a cargo of goods was ordered from Russia half the estimated cost was paid when the order was placed -often several months in advance, the remainder of the cost was paid when the cargo was loaded. This situation limited Scottish trade with Russia to the most substantial merchants who could afford the considerable initial outlay involved, and who could also maintain a large bank balance in London, where the trade was organised.[50]

By contrast, Fir timber cargoes from Memel were only partially paid for on loading with three months credit given on the bills of exchange. Moreover, while merchants purchasing from Russia were faced with a rapidly fluctuating exchange rate the merchants in Memel encouraged trade by agreeing upon and maintaining a standard exchange rate of 18 guilders to the pound sterling.[51]

After 1772 Onega was unable to compete against imports of Fir timber from Memel because of the situation regarding finance and the size of cargo needed to fill ships of between 400 and 500 tons burden. Price and quality were not involved in the preference of Scottish merchants for Memel timber instead of the Onega product. Although Onega was over 1800 nautical miles from Leith as opposed to Memel's 932 miles the difference in freight rates (in 1772 Onega cost 28/- per load to Leith and Memel 22/-) was balanced by the lower prime cost of timber in Onega.[52]

Price, quality and distance were all involved, however, in the growing preference for Memel cargoes rather than their Riga counter-parts. An excellent example of this situation is provided in 1772 when James Inglis jnr. arranged two shipments, one from Riga and one from Memel, into the Inverness precinct for Sir Roderick McKenzie.[53]

Prime cost of 120 loads of fir timber, purchased in Riga from Patrick & George Renny.	£1 per load, or 4.8d per cubic foot.	Prime cost of 121 loads of fir timber, purchased in Memel from Thomas & John Ogilvy.	13/1d per load or3.36d per cubic foot.
Freight on board the Nancy of Inverkeithing, captain David Bonnar.	26/- per load or 6.4d per cubic foot.	Freight on board the Margaret of Inverkeithing, captain Peter Anderson.	22/- per load or 5.2d per cubic foot.
Sold by Inglis for	54/2d per load, or 13d per cubic foot.	Sold by Inglis for	50/- per load or 12d per cubic foot.

Inglis' costs for each cargo would have included 3/8d per load for import

duties and a few miscellaneous expenses, but it seems clear that Riga timber was not only more expensive to buy prime cost and more expensive to ship, but also offered an importing merchant such as Inglis a lower profit margin.

From 1772 imports of Fir timber from Russia were no longer of much importance; the Scottish market for balks, which had first been developed by Russian imports, became synonymous with trade with Memel. The Riga brack, which had made the port's name a byword for quality, led to its downfall in a period in which price was all. However, Scottish merchants such as Inglis, who switched all his timber imports to Memel by the mid-1770's, continued to hanker after the quality of Riga balks though they were unwilling to pay the price. Perhaps Inglis should have the last word:

> they pretend to say (Memel Fir timber) will be much better in quality as all the timber is to be racked or bracked in Poland in order to make it come as near Riga as possible such is their advice but they are a parcel of damned rascals and no dependence can be made on what they say.[54]

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CHAPTER SEVEN

SCOTLAND'S TIMBER TRADE WITH PRUSSIA

During the latter half of the 18th century the Scottish timber trade underwent a threefold structural change in the form source and level of imports: this change was synonymous with the rapid expansion of imports of fir timber balks from the Prussian port of Memel.

Some indication of this profound change is shown in a comparison of the annual Scottish timber import figures for 1755 and 1800. In 1755 Scotland's softwood timber market was dominated by imports of deals, defined by customs regulations as sawn boards up to 3½ inches in thickness, from 7 to 11 inches in width, and from 8 to 20 feet in length. These deals were imported from various ports along the western Scandanavian coastline, from Trondheim in the north-west to Gothenburg in the south-east. In 1755 Scotland imported 1,202 great hundreds (120) of deals from Norway and 1,061 great hundreds from Sweden: together these accounted for over 75 per cent of the Official Value of Scotland's softwood timber imports. However, over the following decades deal imports from Norway and Sweden stagnated, and by 1800 imports of 1,777 great hundreds from Norway and 569 great hundreds from Sweden were worth only 30 per cent of the Official Value of all Scottish softwood timber imports.[1] Moreover, the Official Values provided in the Inspector-General's reports not only remained static throughout the period, but also underestimated the true value of Fir timber, the dynamic element in the Scottish timber trade: using the more accurate 'Declared Values' the relative worth of Norwegian and Swedish deals declined to only 15 per cent.[2]

The decade before 1755 had seen some growth in imports from Norway and the Baltic of 'Fir timber' that is, lengths of squared timber balks with sides of at least 12 inches. Even in 1755 the true value of this item was underestimated due to inaccurate 'Official Prices.' In 1755 the Inspector-General's accounts record the importation of 1,600 loads of Fir timber from Norway, 114 loads from Germany and 243 loads from Russia. The timber was given an Official Value of 2/7d per cubic foot; this suggests a total price of £1,834.13/9d.

During the period 1755 to 1800 imports of Fir timber rose dramatically; indeed even Norway's exports to Scotland rose from 1,600 loads (50 cubic feet per load) with a retail value of £3,000 (9d per cubic foot) in 1755

to 7,667 loads in 1800 with a probable retail value of almost £29,000 (1/6d per cubic foot).[3] However, the major beneficiary in the great upsurge in demand for Fir timber was Prussia, more precisely the port of Memel, which only began supplying Fir timber in 1764. By 1800 Prussia was sending 14,195 loads of Fir timber to Scotland with a probable retail value of over £59,000 (1/8d per cubic foot): one item from one Baltic port was providing 35 per cent of the Declared Value of Scottish softwood timber imports.[4]

During the 16th and 17th centuries, especially in the two major waves of immigration, between 1510 and the 1540's and between the 1570's and 1620's, many thousands of Scots settled in Prussia, working as mercenaries pedlars and merchants. One of the most permanent Scottish communities was established in the town of Memel: a local proverb commemorates the Scots' business acumen, 'with a Scotsman or a priest never go to law'[5]

These strong personal links were not translated into trading contacts; although the first recorded import of Prussian timber dates back as far as 1382 Prussia was of little consequence in Scottish overseas trade.[6] During the 16th and 17th centuries Scottish trade with the Baltic centred on the Polish port of Danzig. Exports to the Baltic included cloth, hides and skins, salt herrings and coal, and imports included flax and hemp, timber, potash, pitch tar and grain.[7] Scotland's balance of trade with the Baltic was highly adverse, estimated at an import-export ration of 1:0.4.[8]

This unfavourable trade balance continued into the 18th century; in 1755 Scotland's only substantial export to the Baltic was 162 tons of lead to Poland, valued at £2,681. Total exports to the Baltic were valued at only £2,967: nothing was exported to Prussia. Imports from the Baltic proved more dynamic; the expanding Scottish textile industry drew in increasing amounts of flax and hemp. Total imports from the Baltic were valued at £50.682 in 1755; the port of Riga sent 520 tons of Flax costing £23,426. while other Russian ports sent flax and hemp valued at £1,241. Total timber imports from the Baltic were valued

at £1,821; this included £1,363 worth of oak plank and clapboard, deals and staves from Danzig, and masts, Fir timber and deals from Riga and St Petersburg - all these figures were of little significance compared to the value of timber imports from Norway and Sweden. Prussia only sent £60. worth of deals, probably as packaging and ballast for 116 tons of hemp valued at £1,978.[9]

Memel's emergence as a timber exporting port was sudden and dramatic. The port sprang into prominence in 1764 when Prince Radziwill first began to send timber from his great forests in Lithuania down the river Niemen to Memel - although Memel was a Prussian port practically all of its timber came from Russian forests.[10] The port also gained much from the discomfort of its rivals; during the 1760's Frederick the Great discouraged exports from Danzig by imposing discriminatory tolls on timber passing through his territory as it was floated down the Vistula: after the First Partition of Poland in 1772 this policy was expanded and Danzig's trade was crippled.[11] For example, in 1775 a Scottish firm in Danzig, Alex Gibson and Co., informed Cadell of Carron Park that:

> The Prussians have much obstructed our trade of late, however the inconveniencies are less and we hope to see them removed before long.[12]

After 1772 Polish Fir timber was of little significance in Scottish imports.

Scottish imports of Fir timber from Riga also suffered due to discriminatory tarrifs imposed by the Russian government to encourage the development of trade through St. Petersburg.[13] Moreover, with its strict bracking system for quality control Riga concentrated on the production of high quality Fir timber for masts and shipbuilding - Scotland's preference for cheaper lower quality Fir timber from Memel reflects the more general needs of the construction industry.

Demand for Fir timber within Scotland was also of major significance in the development of imports from Memel in the 1760's. Just as

Cairncross has shown the close parallel between brick production and housebuilding in late eighteenth century, so the increase in Scotland's Fir timber imports reflects the growth of the Scottish economy at this time: Fir timber was needed in every area of commercial life; for domestic housebuilding, for shipbuilding, for plants factories and housing for the developing iron coal and textile industries, and also for agriculture.[14] As well as general commercial expansion the 1760's also saw the beginning of particular large-scale projects such as the Edinburgh New Town (1767) and the Forth-Clyde Canal (1768). The importance of the construction industry in Edinburgh is shown by Leith Precinct's 25-30 per cent share of Scotland's Fir timber imports in the late 1760's.[15]

As Scotland's imports from Memel increased the port began to supply a variety of different categories of timber; these included, oak timber wainscot logs, planks and clapboards (split oak for barrel staves, ship construction or wainscotting); lathwood (thin narrow pine strips to form a lattice for plaster slates or tiles); staves for barrel making, and Ordinary and Spruce deals. Prussian deals were usually longer than those supplied from elsewhere, upwards of 14 feet in length - a fact which accounts for their comparatively high 'Declared Value' in 1800.[16] However, in terms of both bulk and value Prussian timber exports to Scotland were dominated by Fir timber. Fir timber was the import classification for large, square trimmed logs with sides of at least 12 inches. Fir timber balks were either redwood, the timber of the Scots Pine (pinus sylvestris), or whitewood, the Common Spruce (picea abies) Of the two Scots Pine is more resistant to decay, and so has a wider range of use. It has been suggested that the relatively low Official Price given in the Scottish series of Customs ledgers (18/9d per load set in 1755) means that Scottish imports were mainly cheap whitewood. This is incorrect and shows a lack of understanding of true significance of the Official Prices, and also an ignorance of the Scottish situation.[17]

Scotland's Fir timber imports were dominated by redwood, moreover, the price difference between Scots pine and Spruce in Memel was not substantial;

as late as 1793 the prime cost of redwood and whitewood in Memel was 13/2d and 11/1d per load respectively - for Scots and English alike.[18] In 1793 the cost of freight per load of Memel balks was 30/- and import duty stood at 6/8d per load, and in Scotland the retail cost per load was 75/-.

Detailed statistical information on all Scotland's softwood timber imports, including Fir timber from Memel, can be obtained from three sources: the annual reports of the Inspector-General for Scotland from 1755, the Quarterly Port-books for each Customs Precinct from c.1742 and the Danish Sound Toll Register throughout the eighteenth century.[19]

With the exception of 1763 and 1769 when the reports are missing the Inspector-General's reports provide beguilingly detailed statistics on Fir timber imports from Prussia. The reports list the annual importation of Fir timber per load (50 cubic feet) carried in British or Foreign vessels, and also provide a regular value based on an unvarying Official Price dating from 1755. Appendices 1 and 2 show the complete records of softwood timber imported in 1755 and 1800.[20] By collating the figures provided in each annual report we can construct lists such as Table 23; this allows us not only to follow the expansion of Fir timber imports from Prussia, but also to compare that expansion with other sources of Fir timber such as Norway and Russia. The statistics from Table 23 are shown in Graph 1, providing a striking illustration of the primary roles of Prussia in Scotland's total importation of Fir timber.

The statistics from the Inspector-General's reports show several peaks and troughs in the level of demand for Fir timber in Scotland; rapid expansion in imports took place between 1763 and 1772, 1776 and 1778, and most notably between 1784 and 1792. Stagnation in the level of imports is recorded between 1773 and 1775, 1778 and 1783, and 1793 and 1800. However, it is noticeable that growth was, to some extent both cumulative and continuous, even in periods of stagnation in imports such as 1773 to 1775 the level of imports never fell below previous gains. So, for example, in the period of stagnation from 1778 to 1783 the import

level was still sustained at a figure higher than that reached in the expansion from 1763 to 1772.

T.C.Smout has described the primary role of trade as an indicator of economic well-being in Scotland in the late seventeenth century; 'foreign trade formed the hinge on which the whole prosperity of the country turned. All economic growth began with its expansion, and all economic decline was foreshadowed in its contraction.' [21]

This was still the situation in the period 1763 to 1772 when the first rapid growth in imports of Fir timber, a basic primary product, reflected not only demand from large capital-intensive projects such as Edinburgh's New Town and the Forth-Clyde canal, but also construction work on shipbuilding, coal-mining, iron-works and textile mills. This general stimuli of urban and industrial growth was matched by Scotland's rural economy: agricultural improvement led to greater investment in new farm buildings using imported timber in a period which saw the beginning of 'The Great Rebuild.' [22]

Within Scotland's expanding market for Fir timber Prussia quickly outstripped her two main rivals, Norway and Russia, and achieved a dominant position. Although there was a later increase in Fir timber imports from Norway from 1786 onwards Graph 1 would suggest that Prussian supplies were of paramount importance from as early as 1767.

Some of the reasons for the emergence of Memel as a major supplier of Fir timber were outlined by J.J.Oddy in 1805 when he wrote:

> Memel has been most remarkable for its considerable trade in timber, which was not of any importance'till 1764, since when it has rapidly increased, partly from the convenience of the port, and partly from the greater supplies at a more reasonable rate and better squared than from other ports. [23]

In Scotland, Memel Fir timber quickly outpaced its rivals because it proved an excellent compromise in the conflict between quality and price: as James Inglis jnr. an Edinburgh timber importer pointed out in 1773, 'Memel timber is best as it is neither the finest or worst in quality,

but almost a cheap as Norway but much better quality.' [24]
At this time Inglis was selling Fir timber from Norway Memel and Riga at 9d, 10½d and 11½d per cubic foot respectively.

The first major period of growth in Scotland's Fir timber imports came to an abrupt halt in 1772. The collapse of financial credit in Scotland following the failure of the Ayr Bank was only part of a financial crisis which rocked European commerce. At first it was hoped that the disruption to trade would be temporary; in October, 1772 Inglis wrote, ' I am hopeful that long before next summer trade tranquality will be restored'.[25]
However, by January, 1773 the full scale of the financial collapse was clear:

> you have no doubt heard of the very melancholy accounts from Amsterdam. The Clifford and two other Capital houses have stopped payment as likewise their house in London, also Dryars and John Craven. The rich Jew Goldsmid and many others of that tribe - they are terribly cut being the great foreign drawers and remitters. The consequence will be severely felt by every trading city in Europe and must make a great smash at Paris Hamburg and Madrid... happy is the man who is least concerned in trade at present or for sometime to come. [26]

The effect of this financial crisis on the construction industry in Scotland was immediate; for example, work was halted on the building of Register House in Edinburgh and did not begin again for almost a decade. [27] In May 1773 Inglis' letter book records that, 'there never was a time this twenty years that trade in general was so dull... the shipping in the river lies rotting for want of employment..' [28]

In July 1774 Inglis wrote to the Memel timber merchant Ludwig Simpson:

> I am favoured with yours of 8th Jan. the contents of which are duly attended to. The demand for timber in this country is greatly lessened within these last two years and by all appearance will still be smaller as every kind of building is entirely stopped. [29]

The slump in Scotland's demand for Fir timber came to an end in 1776, and the outbreak of the War of Independence appears to have had little affect on trade with the Baltic. Inglis' successors, Hunter and Smith, informed one captain, Andrew Beall of Leven, when he wrote touting for business, that they would send him to Memel as, ' we will in all probability have occasion for a considerable importation of timber from hence this season.' [30] Indeed, imports of Fir timber in 1777 reached an unprecedented level of 10,590 loads -with Prussia providing almost 90 per cent of that.[31]

However, this improvement in the level of Fir timber imports was short-lived; the outbreak of war with France in 1778 and Holland in 1780 caused great disruption of trade and shipping. Freight rates rose from a pre-war level of 19/- per load to the Scottish east coast from Memel to 27/- in 1778 and 31/6d in 1780. [32] As freight accounted for the most substantial portion of the price of Fir timber this dramatic price increase due to privateers in the North Sea greatly reduced imports. In 1780 Hunter and Smith wrote, 'the stagnation of trade has been so universal through this island from the unhappy war that has prevailed and obtains, that few opportunities of commercial interest have occured.' [33]

During 1781 and 1782 freight rates continued to rise, and import figures fell further; by 1781 freight was costing Hunter and Smith 37/6d per load and in 1782 it peaked at over 50/- per load. Unfortunately, the letter-books of Hunter and Smith no longer provided any information on the slump in demand for Memel balks: in 1782 after the capture of two of their vessels by privateers the partnership was dissolved.

In the decade from 1783 to 1792 freight rates and the retail price of Memel Fir timber fell back to their pre-war levels: as the Scottish economy boomed so the level of Fir timber imports increased dramatically. Demand for Fir timber increased almost fivefold, reaching over 35,000 loads in 1792. This marked the peak for imports during the eighteenth century; following the outbreak of the French Revolutionary War in

February,1793 freight rates and retail prices for Fir timber rose rapidly, with freight from Memel to Leith as high as 45/- per load in 1800.[34]

It is a measure of the strength of demand from the Scottish economy that import levels during the 1790's remained relatively high - even with a rise in the retail price of Memel balks from 1/2d to almost 2/- per cubic foot.

Although the annual figures for Fir timber imports provided by the Inspector-General's reports give an excellent indication of the trend of import levels care is still needed in working with this source. As T.C. Smout pointed out:

> Having collected his figures, the historian is too often in the position of not knowing whether it is better to use them, or to explain them or to explain them away.[35]

The Inspector-General's reports were drawn up to record the amount of duty paid on imports and not to record the level of imports per se. The veracity of the figures provided is doubtful; the reports were compiled from the Quarterly port books drawn up in each Customs Precinct, but these port books were not accurate. For example, in 1772 the Inverness Precinct port book records the payment of import duty on 82 loads 15 feet of Memel Fir timber from on board the Margaret, Capt. Anderson.[36] However, the shipment was organised by James Inglis jnr. the Edinburgh timber merchant, and his accounts provide the following record.

Bought from Tho and Jn Ogilvy and Co.

Invoice of timber per Capt.Anderson (prime cost)	79. 5. 9.
Freight and 2/3 port charges	135. 6. 4.
Officers fees	4.17. 6
Import duty, landwaiters fees	19. 3. 6½
Customs report	2. 2.
TOTAL	£240.13. 3½

Sold to Sir Jn.Gordon,bart.Invergordon 6056 ft @ 1/- £302.16/-[37]

Inglis' accounts show a cargo of 121 loads 6 feet, but only two thirds of this is recorded in the port book entry of 82 loads 15 feet. Inglis made a profit of £62. on the shipment, or approx. 25% of his outlay: with import duty at 3/8d per load Inglis saved approx. £7 through under-entry.

Smuggling, in the form of under-entry and non-payment of import duties, appears to have been common in the timber trade in general. For example, in 1724 two 'tidemen' or customs officials in Leith were prosecuted after 'they suffered 400 deals to be run out of a ship from Norway, on which they were boarded in July or August last, for which service they received 16/- each from the merchant' [38]

The letter books of Hunter and Smith, an Edinburgh firm of timber merchants, include several innocuous references to the manner in which cargoes should be registered with Customs; for example, one Falkirk merchant was asked to purchase his shipload of timber 'before the mast' that is, it would be his responsibility to pay all duties, as ' we are unacquainted with your Custom House Officers '.[39]

Another letter notes 'we cannot report the deals until such time as we have a conversation with the tidewaiter' [40] Agents acting for Hunter and Smith, such as Alex Laird at Grangemouth, received more blatant instructions, for example:

> you'll use the tidewaiter appointed to the discharge of the Mary Ogilvie with every civility to induce him to deal favourably with you.
>
> have you passed the deals short reported, we expect half to a third off the duties.[41]

Unlike deals, which paid duty by the piece (per 120) almost regardless of actual timber content, imported Fir timber paid duty by content, per cubic foot. To record the timber content and establish the duty to be paid for each Fir timber balk Customs officers known as 'Measurers' were employed in each Precinct. [42] Opportunities for falsifying customs entries were increased with Fir timber because the measurer could use his discretion to make allowance for faulty or poor quality timber: from a comparison between port book entries and merchants' accounts it would

appear that such malpractice was rife. The following table shows a comparison of Fir timber cargoes from Memel to Scotland.

Date	Vessel	Precinct	Port book entry	Merchant's account[43]
1770	Saltown&Peggy	Inverness	71 loads 33 feet	104 loads 31 feet
1772	Margaret	Inverness	82 " 15 "	121 " 6 "
1772	Peggy	Leith	75 " 6 "	113 " 42 "
1776	Erskine	Inverness	31 " -	59 " 18 "
1777	Diana	Leith	58 " 9 "	103 " 18 "
1779	Diana	Leith	52 " 33 "	112 " 25 "
1781	Elliot	Leith	52 " 5 "	137 " 16 "
1792	Breadalbane	Perth	200 " 37 "	260 " 12 "
1793	"	Perth	222 " 38 "	253 " 5 "
1793	"	Perth	232 " 8 "	250 " - "
		Total	1078 " 34 "	1515 " 23 "

These sample entries found in the port books account for only 71 per cent of the actual Fir timber imported in the 10 vessels from Memel; this suggests that the annual figures shown in Table 23 and Graph 1 represent only a little over two-thirds of Scotland's true importation of Fir timber.

The Quarterly Port Books, which are extant for most Customs Precincts from 1742 to 1795, provide us with a variety of information on vessels bringing Fir timber from Memel; this includes, the date of arrival, the vessel's name, the captain and his home port, the last port of call and full cargo details. This information allows us to look at several different aspects of Scotland's Fir timber trade; for example, Table 20 and Graph 7 show imports of Fir timber into the Leith Precinct between 1743 and 1795.[44]

By adding up every cargo of Fir timber arriving in each Customs Precinct during a particular year it is possible to create a snapshot of the Scottish Fir timber trade; this will show not only the total amount of Fir timber imported in a particular year and the amount brought in from each source country, but also the proportion imported into each Scottish Customs Precinct. Tables 8 to 13 show this type of information for the

Fir timber trade in 1744, 1755, 1765, 1775, 1785 and 1795. The Fir timber import figures for 1744 show the low level of demand in Scotland at that time; Norway was the only source for the 703 loads imported, and the Leith Precinct dominated with 173 loads. By 1755 the total Fir timber imported had risen substantially to 2,101 loads; Norway remained the main source of supplies, but other countries also appeared, such as Russia and Germany. Leith continued to draw in most of Scotland's imports. In 1765 the level of imports reached almost 5,000 loads, more than double the 1755 level. In 1765, for the first time, Norway was surpassed by other sources of Fir timber, Russia and Poland. Also, Prussia appears as a source for the first time. In 1765 substantial changes also took place in the share of Fir timber imports between Scottish Precincts; Greenock, with 1,432 loads, overhauled Leith as Scotland's largest centre of demand. In 1775 the total amount of Fir timber imported into Scotland had only risen marginally over the 1765 figures at 5,668 loads. Prussia had become the dominant source of Fir timber; sending over 70 per cent of the total, while imports from Poland had collapsed. Imports into both the Leith and Greenock Precinct's had declined a little, and Scotland's total import of Fir timber was distributed more evenly between the different Precincts. In 1785 Fir timber imports had risen to almost 14,000 loads with Prussia supplying 12,686 loads. Imports into both the Leith and Bo'ness Precincts had risen dramatically to 3,764 loads and 2,348 loads respectively. As the Forth-Clyde Canal had opened by this time much of the Bo'ness figure would have been carried to the west of Scotland. In 1795 the Fir timber situation was broadly similar to 1785; imports had fallen a little to 12,781 loads, but Prussia remained the major supplier with 9,793 loads. The Precincts of Leith and Bo'ness continued to import most Fir timber, but it is a measure of the failure of Scotland's native timber resources in the central Highlands that the Perth Precinct was Scotland's third highest import region for Fir timber.

The type of information provided in tables 8 to13 does not reflect the long-term importance of each precinct; each table merely provides a snapshot for one particular year. For example, tables 8 and 9 alone give no indication of the substantial amounts of Fir timber imported into the Campbeltown precinct during the late 1740's and early 1750's

for building work on Inveraray Castle and New town.[45] Moreover, larger ports, such as Leith and Bo'ness acted as entrepots, serving substantial hinterlands and importing timber which was then shipped to other smaller ports: after the opening of the Forth-Clyde canal in the mid 1770's Bo'ness supplied much of Glasgow Fir timber, while timber imported into Leith reached south to the border towns of Melrose and Kelso.[46] Also, during the early 1770's John Baxter, the architect of Gordon Castle on the Spey, made several visits to the Leith timber bush: when timber was needed urgently it could be brought round the coast from Leith far quicker than the time needed to arrange a direct shipment - however, the cost of coastal shipments was prohibitive.[47]

A comparison between the annual import totals provided in the Inspector-General's reports and the cumulative Port book entries shows only marginal differences; in 1785 we find the following figures,

	Inspector-General's reports	Total Port book entries
Prussia	12,409 loads	12,687 loads
Norway	975 "	902 "
Russia	455 "	263 "
Poland	221 "	147 "

These differences are of little importance: they simply reflect the delays and adjustments involved in registering cargoes and paying duties.

By totalling up individual entries in each of the Quarterly Port books information can be gained on the source of Prussian shipments, and by recording all entry dates, on the seasonality of the Fir timber trade in Scotland. In 1785 a total of 136 vessels was recorded arriving in Scottish ports from Prussia with cargoes of Fir timber. This trade was dominated by the port of Memel, which sent 135 vessels, only 1 shipment arrived from another Prussian port, Konigsburg.

The following table shows when and where each Memel cargo arrived in Scotland:

Fir timber cargoes from Memel, 1785.

	Total.	Jan	Feb	Mar	Apr	May	Jne	Jly	Aug	Sept	Oct	Nov	Dec
Aberdeen	5							3		2			
Alloa	11						4	3		1	1		2
Anstruther	3	1						1					1
Ayr	5						3	1		1			
Bo'ness	20	1					3	2	5	2		1	6
Dunbar	6	1							2	2			1
Dundee	7						2	1	1	1	1		1
Greenock	2							1				1	
Irvine	6						1	1	1	3			
Dumfries	2							1					1
Inverness	1										1		
Kirkcaldy	11	1					5		2	1			2
Kirkcudbright	2						1		1				
Leith	32						11	2	8	4	2		5
Montrose	3						1		1		1		
Perth	8	1					3		1	2			1
Port Glasgow	3					2				1			
Prestonpans	3							1	1	1			
Stranraer	2						2						
Stornoway	2								1				1
Wigtown	1						1						
Total	135	5				2	37	17	24	21	6	2	21

Of the 135 arrivals with Fir timber from Memel recorded in the various Port books for 1785 13 are multiple arrivals; 6 vessels called in at two or more Scottish ports and offloaded part of their cargoes in each. This means that 127 individual trips were made from Memel to Scotland with Fir timber; of this total 81 different vessels made a single trip during 1785, 14 vessels made the journey twice, and 6 vessels managed 3 trips between Memel and Scotland. This specific information for the

Memel- Scotland timber trade confirms the work of H.C. Johansen on British trade with Memel. In his analysis of the Danish Sound Toll Registers Johansen found that, if fortunate, a ship on constant trade between Britain and Memel could complete three round trips per year. Many ships sailed on this route exclusively, but others included a Memel voyage as one part of a complex shipping pattern.[48]

The Quarterly Port books also provide information on the home port of each ship; of the 101 different vessels which arrived in Scotland from Memel in 1785 the home port of 100 can be traced,

Leith	20	Torryburn	2
Dysart	8	Wemyss	2
Newcastle	6	Grangemouth	2
Shields	6	Carron	2
Alloa	6	Montrose	2
Saltcoats	5	Perth	2
Ayr	4	Workington	2
Irvine	4	Stranraer	2
Aberdeen	4	Glasgow	1
Dundee	4	Port Glasgow	1
Kirkcaldy	4	Peterhead	1
Kincardine	3	Ely	1
Inverkeithing	3	Anstruther	1
		Dunbar	1
		Memel	1

The ownership of vessels involved in the Memel Fir timber trade with Scotland was dominated by the port of Leith: other smaller ports in the Firth of Forth were also important; together they provided 35 of the ships sailing in 1785, with Dysart alone the home port for 8 ships. The coal ports of north-east England were also an important source of ships, with Newcastle and Shields the base for 6 ships each. Finally, this information corresponds with that of the Inspector-General's annual reports concerning the dominance of British owned vessels in the Memel trade; only one foreign owned vessel is recorded.

The third major source of statistical information on Scotland's Fir timber imports from Memel is the Danish Sound Toll Accounts; from the annual returns edited by Bang and Korst statistics are available for Fir timber balks from Prussia passing through the Sound to a Scottish port until 1783.[49] For the years from 1784 to 1795 we can draw upon the annual returns edited by H.C. Johansen; however, these figures, included in the following table, have been rounded out to the nearest hundred.[50]

Danish Sound Toll Accounts, Balks of Fir timber from Prussia to Scotland, 1760 to 1795 per piece.

1760	70 balks	1778	17,387
1761	138 "	1779	3,162
1762	-	1780	13,148
1763	70 "	1781	9,834
1764	442 "	1782	11,244
1765	1,049 "	1783	15,468
1766	1,837 "	1784	29,200
1767	4,060 "	1785	31,900
1768	2,317 "	1786	38,300
1769	6,853 "	1787	53,500
1770	4,223 "	1788	34,400
1771	3,250 "	1789	34,000
1772	8,358 "	1790	41,400
1773	8,729 "	1791	30,300
1774	8,378 "	1792	45,200
1775	9,327 "	1793	24,900
1776	15,470 "	1794	20,100
1777	22,129 "	1795	13,200

Unfortunately, there are several serious drawbacks involved in using material from the Sound Toll Accounts: duty on Fir timber balks was paid per piece whatever the actual timber content. The combination of merchant's accounts, Scottish Port books and individual Sound Toll entries shows the shortcomings of Sound Toll Accounts as historical

sources; in particular their use of 'balks' or individual lengths of timber as the only measure of Fir timber cargoes. Balks alone give no idea of the actual timber content of a cargo of logs. On 27th August 1792 the Breadalbane, Captain Hugh Campbell, left Memel with 378 Fir timber balks, the Sound Toll Accounts record the payment of duty on 378 balks on 13th September and on 25th September the Perth Quarterly Port book records the entry of 378 balks containing 232 loads of 8ft Fir timber. However, although all sources tally in recording 378 balks this figure gives no indication of the cargo's timber content. In fact the merchant's private papers show the Breadalbane actually carried 250 loads of Fir timber - in balks which varied in their timber content from 17 to 51 cubic feet.[51]

The Sound Toll Accounts also provide a rather inaccurate record of declared destinations, which throws doubt on the annual figures for balks destined for Scotland, and also for the home ports of vessels declaring a Scottish home port; of the 127 vessels recorded in the Scottish Port books as arriving from Memel with Fir timber in 1785 only 103 can be traced on a list of vessels from the Sound Toll Accounts - that is, vessels which declared a Scottish destination. Moreover,in the Sound Toll Accounts Leith is given as home port for 42 vessels, as opposed to 20 in the Scottish Port books.

It would appear that in the Sound Toll Accounts, in common with the Norwegian Port books, Scotland and Scottish ports were often recorded as part of England.

Nevertheless, the Sound Toll Accounts, especially the detailed annual print-outs provided to the Scottish History Department at St. Andrews University by H. C. Johansen, do provide several useful types of information. These print-outs include details on all vessels passing through the Sound in a given year either owned in Scotland or sailing to or from a Scottish port. Johansen's detailed print-outs illustrate the point that Scotland could not finance its Memel trade with exports to the Baltic; in 1785 98 Memel bound vessels are recorded entering the Sound, either from Scotland or owned in Scotland, of these only 8 vessels carried a cargo, either salt or herring, the rest were in ballast. However, a negative trade balance in the Baltic could be offset by sales elsewhere: the ports of departure for the 98 memel bound vessels illustrate this complex web of Scotland's

overseas trade at this time - many vessels did not simply ply their trade back and forth between a specific Scottish port and Memel.

Port of departure for vessels entering the Sound, with Memel as a destination, from or owned in Scotland, Sound Toll Accounts, 1785.[52]

Leith	13	Cromarty	2
Glasgow	9	Inverkeithing	1
Dundee	7	Montrose	1
Irvine	5	Crail	1
Aberdeen	5	Sandwick	1
Bo'ness	4	Gothenberg	5
Greenock	4	Marstrand	5
Airth	3	London	3
Alloa	3	Amsterdam	3
Dysart	2	Rotterdam	2
Perth	2	Dublin	2
Saltcoats	2	Kungalv (Sw)	1
Leven	2	Middelburg	1
Kirkaldy	2	Hamburg	1
Stranraer	2	Portsmouth	1
Peterhead	2		
Dunbar	1		

If we combine the arrivals recorded in the Scottish Port books with arrival and departure dates at the Sound we can trace the annual shipping pattern for individual vessels; for example, during 1785 Capt. George Bridges in the Amity of Dysart made the following trips:

Date	Destination	Cargo	Source	Port of departure	Home port
7.4.85.	Konigsburg	204 tons coal	Sound Toll	Bo'ness	Bo'ness
3.6.85.	Bo'ness	273 balks	Sound Toll	Memel	Leith
16.6.85	Perth	220 balks 99 loads 25ft	Port book	Memel	Dysart
9.7.85.	Memel	ballast	Sound Toll	Dundee	Dysart
15.8.85.	Dysart	301 balks	Sound Toll	Memel	Dysart
18.8.85.	Perth	240 balks 108 loads 25ft	Port book	Memel	Dysart
16.10.85.	Memel	20 barrels Herring	Sound Toll	Marstrand	Dysart
27.11.85.	Dysart	213 balks	Sound Toll	Memel	Dysart
9.12.85	Dunbar	96 balks 60 loads	Port book	Memel	Dysart
20.12.85	Bo'ness	100 balks 50 loads	Port book	Memel	Dysart[53]

During 1772 James Inglis Jnr. an Edinburgh timber merchant, sold Memel Fir timber for a retail cost of 9 3/4d in Edinburgh, 11½d in Glasgow and 12d in Invergordon (all prices per cubic foot). [54] His successors, Hunter and Smith, were selling Memel Fir timber in Edinburgh for 12d in 1778, 13d in 1780 and 15d in 1781. [55] Variations and fluctuations in the retail price of Memel Fir timber were the direct result of changes in three main factors; the Prime cost of timber in Memel, Freight and port charges for shipping to Scotland, and Import duty when the cargo arrived in Scotland. Added to these three main inputs were less significant miscellaneous expenses such as insurance, sound dues, tidewaiter's fees and bribes, and the merchant's own profit margin.

Detailed information on the main influences on Memel Fir timber is provided in the 1835 Parliamentary Paper on Timber duties; table 29 shows the Prime cost, Freight and port duties, and Import duty for Memel Fir timber, per load, entering London in 1765 and 1778 to 1800. [56] The total cost given does not represent the retail price but the cost to the importing merchant, known as the c.i.f. cost, insurance, freight The various costs shown for imports into London correspond closely with available Scottish prices; for example, in 1793 John Campbell of Perth bought Memel timber from Durno, Robinson and Ruppel for a Prime cost of 4 stivers per foot cubed, that is 20/- per load - the London material gives a Prime cost of 18/-. [57]

When James Inglis jnr.sold the Margaret's cargo of Memel Fir timber to Sir John Gordon in Invergordon in 1772 the Prime cost of the timber in Memel was approximately 13/- per load, that is 26 per cent of the retail price of £2.10/- per load. [58]

Although the retail price of Fir timber fluctuated greatly in the period 1765 to 1800 the Prime cost at which it was sold in Memel remained stable; this is clear from both the figures for London and Scottish evidence; in 1777 the Memel firm of Byres and Durno quoted Hunter and Smith Fir timber at 3 - $3^{2}/_{3}$ stivers per cubic foot, depending on the length of the balks; in 1788 Percival and Frentzel of Memel quoted James Morrison of Perth 3 1/3 stivers, and in 1785 Morrison was asked for $3\frac{1}{2}$ to 4 stivers per cubic foot by Simpson and McLean. [59] By late 1793 the rise in Prime cost shown in the London figures was effecting Scottish prices; John Campbell of Perth was buying Fir timber in Memel for 4 3/4 to 6 stivers from Durno, Robinson and Ruppel. [60]

The major influence on the Prime cost of Fir timber in Memel was demand from Britain; between 1784 and 1795 Britain accounted for 75 per cent of vessels declaring Memel as their port of departure at the Sound. In 1774 during a trade depression James Inglis Jnr. told Simpson and McLean of Memel:

> I am favoured with yours of 28 ult. noting the prices of your timber which I cannot help thinking high

considering the decrease in demand to Britain. [61]

Memel merchants informed their Scottish customers of market conditions and prices every January; in 1785 Byres Durno and Moir informed James Morrison of Perth that:

> The stocks of timber tho' not so large are much better than usual; ours in particular is extra good. It consists of the greater and greatest lengths - so that if you prefer giving a previous order at the current spring prices to the chance of the market, you can depend on being well served. The fresh supplies which arrive in June are expected to be uncommonly large - the high prices paid last season encouraged people to cut down more than usual and the winter promising to be steady.[62]

As Byres Durno and Moir pointed out increased demand for Memel timber in Britain had pushed up the Prime cost in 1784. [63] However, with the increase in felling the Prime cost in Memel stabilised and, as the London series shows, remained steady until 1790. [64]

During the last decade of the eighteenth century the Prime cost of Memel Fir timber fluctuated greatly; between 1790 and 1791 the London figures show a leap in Prime cost from 11/4d in 1790 to 31/2d in 1791.

The rapid increase in the Prime cost of Memel Fir timber in 1790-91 coincides with a period of peak demand in Scotland, and, for the first time, Prime cost became a more important component in the retail cost of Fir timber than Freight and port charges. The increase in Prime cost in 1790-91 had a dramatic effect upon retail prices in Scotland; the sales book of James Allan, an Alloa timber merchant, shows an increase in the retail price of Memel Fir timber from 11½d to 14d per cubic foot. [65] In common with the rise in Prime cost in 1784 this rise was probably due to the great increase in demand for Memel Fir timber balks. The Prime cost of Memel Fir timber also fluctuated during the year as supplies arrived in the port from, for example, Lithuania along the river Niemen.[66] In early 1793, before the main arrival of timber

in Memel in June, John Campbell of Perth had to pay 6 stivers per cubic foot (31/- per load) for his timber cargo, but by mid-summer his next cargo cost only 4 stivers per cubic foot (20/- per load). [67]

In his examination of Scotland's overseas trade in the late seventeenth century T.C.Smout has shown the close relationship between merchants in Scotland and fellow nationals trading from abroad. Indeed, at that time the Scots' dependence on their factors based in foreign ports appears to have both limited the horizons of Scottish trade and stifled competition - to Smout the reliance on factors was probably a major psychological check on the expansion of Scottish commerce in the late seventeenth century. [68]

Trade in Memel in the post 1764 period was a new venture for Scottish merchants, a development which was to transform the Scottish timber trade. The historic links between Prussia and Scotland had past: Scottish emigrants from the seventeenth century had become fully assimilated in their new home. [69] However, Scottish merchants were quick to see this new opportunity and skippers sailing into Memel for a cargo of timber would have no difficulty in finding a fellow Scot to meet their needs - if they so desired.

The Scottish merchant community in Memel included men such as Thomas and John Ogilvy, James Durno, Patrick Byres and James Moir. These were men of considerable importance; in 1775 a British Consul was established in Memel and provided the British government with advice on an annual summary of the port's maritime and commercial business, this post was held for most of the period by two Scots, Byres and Durno respectively. [70] James Durno in particular was of great influence in British diplomatic circles. Durno's partner, James Moir, was the brother of the spy and double agent William Moir who disrupted French supplies of vital naval stores from the Baltic during the Napoleonic Wars. [71]

The Scottish merchant community in Memel had close links with both the Scottish merchant community in Gothenburg and north-east Scotland; both Byres and Moir were related to the Gothenburg merchant and Jacobite

exile James Moir of Stoneywood, while Durno's brother was an Aberdeen advocate.[72] There is some evidence of a transfer of trade and personnel from Gothenburg to Memel; from the 1760's onwards timber imports (deals) from Gothenburg declined in importance, replaced directly by imports of Russian deals, but also by Memel Fir timber logs which could be cut in Scotland to any size or specification.[73] From the 1760's Jacobite exiles such as Moir of Stoneywood and James Carnegie who had done so much to develop Scottish trade with Gothenburg, were pardoned and returned home, while young Scottish merchants such as Patrick Byres and John Harlaw of Fraserburgh who had trained together as apprentices in Gothenburg, shifted their attention to the more lucrative Memel trade.[74] The direct Scotland - Gothenburg return trip was replaced by more complex sailing ventures; Scottish vessels still carried cargoes of coal, lead and (from the 1770's) potatoes to Gothenburg, but many then sailed on to Memel to collect a cargo of Fir timber.[75]

By the 1760's the cosy relationship between Scottish merchant at home and Scottish factor abroad had gone forever; in 1773 James Inglis Jnr. took legal action against two fellow Scots, Thomas and John Ogilvie of Memel, over the quality of two timber cargoes. Inglis' opinion of all Memel merchants, Scots included, was that of a hard-nosed businessman:

> it is absolutely necessary to keep these Memel gentry to their tackle otherwise there is no dependence of getting business done with any degree of honour or propriety - their behaviour last year, exclusive of shipping the worst cargoes ever was from any port, was very far from being gentile during the misfortunes.[76]

Obviously, personal contacts between merchants were still important; Marshall in Perth and Inglis in Edinburgh communicated regularly with their counterparts in the Baltic ports, and several merchants from Memel, Riga and St Petersburg toured Scotland developing and renewing trade contacts. In January, 1775 Inglis introduced Marshall to Matthew Wilhelm Fischer of Riga who 'makes a jaunt to this country to be introduced to importers of that country's produce.'[77] Scots also undertook similar trips; in the 1770's the accepted manner for a Scottish merchant to

complete his apprenticeship was to travel on a venture on either the Baltic or West Indies. In 1779 John Inglis, the natural son of James Inglis Jnr. undertook just such a trip to St. Petersburg on the Duncan of Leven. [78]

Unlike the ports of Riga and Danzig, Memel did not operate a bracking system to regulate the quality of its Fir timber. As we have seen (p.216), Memel's product was attractive because it offered a compromise in terms of both quality and price. Ironically, the low prime cost of Memel timber as a proportion of the retail cost placed great emphasis on shipmasters getting the best possible quality timber. This position was explained by Hunter and Smith in 1780 when they informed Franz and Coule of Memel that:

> we have heard some very bad reflections on the quality of your timber and as the freight and duty constitutes the value of the timber here and a bad cargo would be attended with the most disagreeable conseqeunces to all parties we have thought it the most prudent mode of proceeding to give the master unlimited authority to go where he can. [79]

Both Scottish and Memel merchants used Riga timber as their standard measure of quality; for example, in 1783 Percival and Frentzal in Memel told James Morison in Perth, 'the bracking is by a bracker bred in Riga, we are informed they are not inferior to what is specified there'. [80] James Inglis Jnr. was not optimistic about such claims; in 1773 he wrote:

> they pretend to say (Memel Fir Timber) will be much better in quality as all the timber is to be racked or bracked in Poland in order to make it come as near Riga as possible - such is their advice but they are a parcel of damned rascals and no dependence can be made on what they say. [81]

Given the lack of a system of bracking in Memel on a port-wide basis, and the importance of receiving the best possible quality, then this constant stress on quality standards may have been justified. However, it also seems to have been a business technique, a means of intimidating

Memel merchants and keeping them up to scratch. As such, this regular reminder of the importance of quality is on par with the constant litany to ship-captains to select the best logs and 'see that they are as free of sap and blue wood, rotts knotts and shakes as possible.' [82]

In 1773 when building work in Scotland almost stopped due to the financial crisis of the previous year, Inglis actually claimed that problems with quality were his only reason for stopping imports, 'the quality of your timber being every year more indifferent made me decline sending any vessels this year.' [83] However, when prosperity returned to the Scottish economy in 1775 Inglis felt no compunction about buying Memel timber, and in 1776 his successors, Hunter and Smith noted, 'we had some small vessels with timber from Riga and Memel last autumn and from the latter port their cargoes turned to very good account.' [84]

In another sideswipe at the quality of Memel timber James Inglis Jnr. provided an indication of one reason why Memel outpaced its rivals as the centre of Scotland's timber trade - finance. 'In Riga the exchange is more precarious but I wish the ship had gone there as the quality could be more depended on.' [85]

During the sixteenth and seventeenth centuries the Scottish ideal for trade with the Baltic was the 'retorno' system; merchants hoped to pay for inward cargoes of goods from the Baltic with the proceeds of the sale of Scottish goods in Baltic ports.[86] Within this system of quasi-barter money would pay little part. In fact, this balanced bilateral trade was never managed as Scotland's trade balance with the Baltic remained negative. The shortfall in Scottish trade with the Baltic was met with payments of bullion or specie.

T.C.Smout has shown that towards the end of the seventeenth century Scottish merchants trading in the Baltic were familiar with the use of bills of exchange, allowing for multilateral adjustments in the trade balance. However, it seems many merchants still retained a prejudice against bills of exchange and a desire for the simpler methods of 'the good old days.' [87]

The desire to achieve a favourable bilateral balance on each branch of trade remained fixed in official circles; the Inspector-General's reports, begun in 1755, drew up a Scottish 'balance of payments' which aimed to show the value of imports and exports for all countries and colonies with which Scotland had dealings. As Gordon Jackson has indicated after the Union in 1707 there was no necessity for Scottish imports from a particular area to be matched by Scottish exports to that area, or to any other.[88] Scottish trade had become just one of British trade and a weakness of finance with foreign countries could easily be made good through the British coasting trade. In fact, the London money market was of central importance for Scottish trade with the Baltic.

By the mid-eighteenth century any idea of achieving a bilateral balance for individual voyages to and from the Baltic had disappeared, the financial arrangements for outward and inward voyages were completely separate. In the printed pro forma charter party agreements used at this time the right to carry an outward cargo was the prerogative of the captain or the vessel's owners; see for example the agreement between John Wordie, an Edinburgh timber merchant, and Antony Harrison, owner of the Peareth of Shields, for the freight of Memel balks to Leith at 27/- per load in 1778.[89]

Most of the vessels sailing to Memel from Scotland went in ballast, although several had first carried a cargo from Scotland to other destinations such as Rotterdam and Gothenburg. Although the income from such voyages remained separate from the cost of a cargo of Fir timber in Memel by arranging such a voyage and outward cargo an importing merchant could obtain more favourable terms for his timber freight; in 1772 James Inglis Jnr. paid 28/- per load for the freight of timber from Memel to Greenock. In fact, the going rate was 29/- but Inglis had organised a tobacco freight to Rotterdam for the vessel once his own trip was completed.[90] Likewise, in 1780, in a period of high demand for shipping, Hunter and Smith obtained a vessel to bring Fir timber from Memel by arranging a coal shipment to Copenhagen -

even though it was late in the shipping season and the delay might endanger the completion of the voyage due to the threat of ice in both the Baltic and the Forth-Clyde canal.[91]

Scottish purchasesof Fir timber in Memel were financed by bills of exchange drawn on Edinburgh London or Amsterdam; these bills allowed for half the payment at that time and half in three months time. Most merchants developed contacts with finance houses in nearby Konigsburg rather than Memel, because of the high rates charged by Memel merchants for services such as brokerage and agio (currency exchange). In 1776 Hunter and Smith asked their London bankers:

> we esteem it an additional favour if you can recommend us to a house in Konigsburg as we find from experience that by drawing from Memel on that place and through Amsterdam or London there will generally be a saving of 5 to 7½ per cent in the Exchange sometimes more after deducting the Commission and Brokerage chargeable at these places which you'll allow is a considerable object. [92]

The bills of exchange used by Scottish merchants to purchase Memel cargoes could be drawn on either Edinburgh,London or Amsterdam; however, Edinburgh bills proved more difficult to negotiate, their use usually limited a ship's captain to one Memel merchant who knew the reputation of the Scottish merchant involved. As Captains were normally responsible for selecting the Fir timber this could prove a serious restriction. To avoid this situation most Scottish merchants arranged financial transactions through London or Amsterdam, Hunter and Smith explained the situation as follows:

> the common way the merchants here gets their business done, is their bank in London accepts any drafts that may occur in the course of their business and before they becomes due, they are generally reimbursed by remittances but if at any time they are in advance (overdrawn) they charge 5 per cent interest. [93]

Inglis and Hunter and Smith used several different banking houses in London to channel their Memel payments; these included, Sibbald and Brown, Kinloch and Hogg, and Bertram and Baillie. When Hunter and Smith expanded their trade with the Baltic in 1776 they opened an account with the London banking house of Archer, Brydes Maude and Watts on the following terms:

> We was duly with your esteemed favours of 8th ult. and observe you are willing to take a tryal of our business in your place on the following terms vizt 'to accept bills for our account not exceeding £1,000 at a time, and if not in cash before they become due to be allowed the necessary discount of 5 per cent with ¼ pct commission; we suppose you mean by the discount that it is 5 per cent interest for the sum and time you may happen to be in advance, if so we are very well pleased to make a beginning with your house. [94]

Both Inglis and Hunter and Smith provided their captains with the option of drawing on the Amsterdam banking house of Pye Rich and Wilkieson.

Just as quality and price were important factors in Scottish importers preference for Fir timber from Memel rather than Riga or Danzig, so finance was also of some significance; unlike shipments from Russia and Poland cargoes from Memel were solely timber, from the two former ports timber was usually carried as a subsiduary cargo to other goods, such as flax, hemp or bar-iron. Because of the low prime cost of timber a Memel shipment needed only a small financial outlay, but in trade with Russia Scottish merchants had to remit large advance payments through their London bankers. As Hunter and Smith said 'with Memel the profit is not great but the advance is small.' [95] Moreover, unlike trade with Russia which involved complex exchange dealings to allow payments in either roubles or rixdollars, Memel provided a fixed exchange rate, as J.J.Oddy remarked in 1805:

> it must be here observed, that for all the timber shipped they have a fixed rate of exchange of 18 guilders (Prussian) per pound sterling. It is only for this article, the merchants have

> settled it so amongst themselves, to prevent all disputes with masters of vessels, who are frequently empowered to purchase their goods on their arrival.[96]

Although the exchange rate between the pound sterling and the Prussian guilder was fixed some fluctuation was possible as the price of Fir timber in Memel was set in Dutch guilders and stivers. Ships captains in Memel were responsible for financing the purchase and deciding whether to draw on either Amsterdam or London.

In the timber trade between Memel and Scotland the ship's captain was of paramount importance; quite apart from his duties and responsibilities in guiding his vessel on a return trip of over 1800 nautical miles the captain was also responsible for selecting the cargo in Memel and taking care of all the financial arrangements - as such he combined the duties once fulfilled by factors and supercargoes. The practise of sending a supercargo had declined; Hunter and Smith sent one with Thomas Kay of Kirkcaldyin 1780 as he had never sailed to Memel before; Kay was only employed because of the great shortage of available vessels.[97] James Inglis Jnr. used the threat of sending a supercargo as an insult after Capt Midforth of Shields had accepted a poor quality timber cargo in Memel.[98]

Inglis and Hunter and Smith maintained close contact with a group of able and experienced captains whom they could contact when arranging a Memel shipment, for example, in 1777 Captain Thomas Spittal of Dysart was told, 'as we would on account of old acquaintance and a confidence we have in your knowledge of the trade give you preference to any other.'[99]

In the Scottish Port books for 1785 the small port of Dysart in the Firth of Forth was the home port for 8 vessels out of the 101 different ships which sailed between Memel and Scotland - a group of vessels second only to Leith. Moreover, some of the Dysart vessels were regulars, and 2 ships sailed the maximum of 3 return journeys. The port of Dysart had an importance within the Memel trade out of all proportion to its

size; this was due to the ability and knowledge of its captains, Inglis and Hunter and Smith regularly employed three different Dysart captains; George Rutherford Alex Ramage and Thomas Spittal. Inglis gave his opinion of Dysart captains in a letter to Ramage in 1773 concerning a proposed trip to Memel:

> the greatest care must be taken both in quality and price, but I am sensible you'll do for me as for yourself and you are no stranger to that trade - there are sundry of the Dysart people who never go on any other footing and who in my opinion bring the best and largest timber in the trade. [100]

Such was the reputation of Dysart captains that purchasers in Scotland were prepared to pay over the odds for Memel timber - if it had been selected by a Dysart captain. In 1776 Hunter and Smith noted that, 'the gentleman we are in terms with says that he would give a farthing per foot more for Spittal's logs than any other shipmasters that come to this port.' [101]

Whatever their opinion of their captains abilities it did not stop both Inglis and Hunter and Smith from providing them with a plethora of good advice:

> the exchange has for some time past been so unfavourable twixt Amsterdam and London that we would recommend your drawing immediately on our friends in London at the current rate and exchange. [102]

> we are convinced you will exert yourself to have it of the best quality from the port which you'll readily admit is exceedingly necessary where the value of a cargo is principally constituted by the freight. [103]

During the trade depression in 1773 at a time when he observed, 'shipping lies rotting for want of employment' Inglis turned to his contacts in Dysart to carry his cargoes of Memel timber. [104] In May 1773 when George Rutherford of Dysart wrote asking for employment Inglis told him:

> I am favoured with yours of 3 inst. In answer I should be very glad to employ you in preference to any other, being sensible you can, by giving you liberty to purchase, bring

> as good a cargo, as any other whatsoever. But for years past timber from that port has been so miserable that if particular attention is not paid to the picking and choosing it, its really not worth the freight, but besides the demand you make is far too much. Freights this year will be 10 to 15 per cent lower than last, for reasons very obvious, and I am advised last post from Newcastle that freights are broke at 17/- to 18/6d per load from Memel according to the burden of the ships. If you can think of about 19/- per load with provision you take the trouble of purchasing and chusing of the best goods, I have no objection to employ you for two voyages. [105]

Apart from personal contacts with individual captains importing merchants wishing to charter vessels from Memel had several options; some merchants, such as Inglis or Alex Harlaw of Fraserburgh, held part shares in several vessels which they could use. [106] Inglis and Hunter and Smith both made use of several shipping brokers, such as Charles Addison of Bo'ness, William Deas of Alloa and Sebastian Swinton, the Provost of Inverkeithing. [107] During the latter part of the century Alex Laird of Grangemouth held a pivotal role as the timber trade became more concentrated in the Bo'ness Customs precinct; local demand for Fir timber expanded to meet the demands of the developing iron and coal industries in the region, while the completion of the Forth-Clyde canal (open c. 1775) saw Grangemouth develop into an entrepot for the Glasgow timber trade. [108] Alex Laird acted for west-coast timber merchants in the Bo'ness precinct, paying import duties on their cargoes and organising the shipment of goods through the canal.

The shift in the balance of the Scottish Fir timber trade from Leith to Bo'ness and the west is reflecting in an incident involving Alex Laird in Grangemouth and Hunter and Smith in Leith. In September 1780 Hunter and Smith had contracted to supply a cargo of Fir timber for Maxwell and Bisland and Paisley; they had great difficulty in procuring a vessel for the Memel trip and accused Laird of ignoring his duties and obligations as a shipping broker and of favouring his west coast connections:

> we wrote you 14th inst.to which we crave reference - have since been expecting to here from you - suppose some of your Glasgow friends have employed you to procure them shipping.. As we spoke first we cannot think it consistent with that impartiality which should uniformly obtain in mercantile transactions. [109]

Inglis and Hunter and Smith maintained close links with agents shipowners and captains in the north-east of England; indeed, the firm of Hamilton and Rogerson which owned several vessels and acted as brokers for others in Newcastle, was probably their most regular shipping correspondent. Vessels from Newcastle and Shields played an important role in the Scottish timber trade; in 1785 these ports accounted for 12 out of the 101 different vessels which sailed between Memel and Scotland. The coastal coal trade from the north-east of England was not only a major employer of shipping, but also used a type of ship which was uniquely suited to the Fir timber trade with Memel; the port of Memel had a sand-bar at its entrance leaving clearance of 13 to 18 feet. [110] Many vessels anchored outside the bar and loaded by lighter. However, this could prove dangerous either early or late in the shipping season running from spring to autumn. The advantage of employing vessels built for the coal trade was outlined by Hugh Gordon in 1770 when William Black, an Aberdeen timber merchant, attempted to freight a Newcastle vessel to bring Fir timber from Memel to Speymouth for building work at Gordon Castle:

> I'm persuaded the delay in answering Mr.Black's letter must proceed from the difficulty of getting a ship, and the broker in Newcastle taking some time to correspond with other ports, as Sunderland, Whitby and elsewhere they have plenty of large ships in the coal trade who by their flat bottoms are the only ships to venture on such a place. [111]

Although vessels from the north-east of England may have been suited to the Memel Fir timber trade it would appear that their captains were less so; in 1772 Inglis faced a law-suit from two Glasgow timber firms, Lindsay's and Bogle and Scott, after captain Midforth of Shields failed

to select a good quality cargo of Fir timber. Inglis wrote:

> these young s-----els ought not to be employed and I have writt his father as much, who has again applied for employment.. Memel is a port I would not venture to send any of your shipmasters they are not men but boys. [112]

The availability of shipping and the cost of freight from Memel to Scotland was closely linked to the London market; for example, the cost of freight to the Scottish east coast ports was similar to that of the English outports and a few shillings higher than freight to London.[113] London demand acted as a magnet, attracting shipping and setting the cost of freight for the rest of the east coast. If the demand for coal in London was high then shipping for Memel would be in short supply and freight rates would rise; in 1780 Maxwell and Bisland of Paisley asked Hunter and Smith to purchase a cargo of Memel Fir timber, but they were told that:

> we had no conception shipping would have been so ill to be got, as before this year we never were at a loss, and indeed we still want a ship for St Petersburg which we must have, as we are bound to deliver 50 tons of iron from thence. Our order has been lying at Newcastle ever since April, but owing to the high price of coals at London the shipmasters would not hear of an East country (Baltic) freight and there are very few ships of your burden (200 tons). [114]

In their search for a vessel Hunter and Smith wrote to shipowners and brokers as far down the east coast as Jonas Brown in Whitby and George Holden in Hull; Hunter himself then set off to make personal applications, and Smith kept in touch through Hamilton and Rogerson in Newcastle.

> should you not get ships easily at Newcastle your distance from Whitby is not great and as that is the port from which Hull is supplied I think you should go forward and apply. [115]

However, even this measure failed to obtain a vessel and Hunter and Smith told Maxwell and Bisland:

> having been in correspondence with all sea ports in the island at least all on this side of it, we cannot get one vessel for the Baltic owing to the present very high prices of coals at London. [116]

The demand in London for other Baltic goods could also influence the availability of shipping for the Scottish Fir timber trade with Memel; in apr. 1781 Hunter and Smith believed 35/- per load freight would lead to a retail cost of 14d per cubic foot, in fact, they were asked for 37/6d and pointed out their timber would rise to 15d per cubic foot. The rising cost of freight, and so also the increase in Memel timber costs in Scotland, was linked to London demand for Russian goods:

> The present scarcity of English ships is easily accounted for. The London merchants were disappointed of their Petersburg goods last fall, and you know they'll give any freight rather than lose their sales and be subjected to a larger advance. I cannot see how a Memel cargo can indemnify us, and the freights from thence will certainly come tumbling down as soon as the London demand for Petersburg is over. [117]

In fact, the cost of freight from Memel did not fall; in 1781 it rose even higher, to 50/6d per load and the following year it peaked at its highest level, 53/- per load. [118]

The most important factor in determining the retail price of Memel Fir timber in Scotland was the freight rate, the cost of shipping the timber from Prussia to Scotland. In 1773 James Inglis Jnr. complained to Ogilvy in Memel about the quality of a cargo they had sent, and he spoke of the importance of freight:

> I will take it as an indication that you don't want to have any further connections with me or maintain a friendly correspondence - besides if you'll only consider a moment

> the absurdity of shipping bad timber when the freight's treble the value. [119]

In his fury Inglis rather exaggerated the importance of freight within Fir timber costs; however, his account books provide detailed figures showing the relative significance of prime cost and freight in the retail price of Memel timber. In 1772 Inglis organised three shipments of Memel Fir timber, the costs for each cargo are shown below, per load of 50 cubic feet. [120]

	Leith	Greenock	Invergordon
Prime cost in Memel	12/3d	14/2d	13/1d
Freight rate	21/-	28/-	22/-
Retail price	40/7½d	47/11d	50/-
Freight as a percentage of retail price	52%	58%	44%

The relative importance of shipping costs increased during wartime as freight rates rose rapidly and pushed up the retail price of Memel Fir timber in Scotland; in 1781 shipping accounted for 60 per cent of the price when the freight rate to Leith rose to 37/6d per load and the retail cost reached 15d per cubic foot (62/6d per load). Retail prices were normally given per cubic foot; those for Leith Greenock and Invergordon in 1772 were 9 3/4d, 11½d and 12d respectively.

The financial information provided by Inglis' accounts in 1772 illustrates the three distinct freight cost regions in Scotland. The cost of freight from Memel was identical for the ports of eastern Scotland; examples of these costs, drawn from sources such as the letters of Inglis and Hunter and Smith in Leith, Cadell's at Carron and Campbell in Perth, are listed in Table 28 - the cost of freight to eastern Scotland matched that of the English outports, where Scottish merchants hired many of their vessels, and was generally a few shillings higher than the Memel to London freight. [121] A useful series of London freight rates is included for comparison in Table 28. This series is drawn from the 1835 Parliamentary Paper

on Timber Duties and illustrates the close similarity between east-coast Scottish and London freight rates. [122] The full information on the Prime cost, Freight rate and duties paid on Memel Fir timber in London in provided in Table 29.

The cost of freight from Memel to the lesser known ports of eastern Scotland was generally a few shillings higher than to more frequented ports such as Aberdeen or Leith; Inglis explained this situation for shipments to Speymouth:

> I find upon enquiry there is not above 10ft water at the highest spring tides and besides there is a considerable current in the river Spey which is difficult for ships to lye during inconstant weather, this information I have from shipmasters who pretended to be well acquainted with your river... you will be sensible from these difficulties how much shipmasters take the advantage of raising the freights to outports where there is any danger or where they are not acquainted. [123]

Due to the longer distances involved in trips to the west coast of Scotland freight rates to that area were substantially higher than to the east coast, as Hunter and Smith pointed out, 'freight to Clyde from the Baltic are generally 20 to 25 per cent higher than to this port.' [124] Vessels sailing down the west coast also often incurred incidental costs such as pilotage, in the early 1770's this cost £8.8/- to £9.9/- from Orkney to Clyde. [125] However, the high cost of west coast freight was often reduced when charter parties provided follow-on trips; in 1772 Inglis had a Memel to Greenock freight rate reduced from 29 to 28/- per load by arranging a tobacco freight from Clyde to Rotterdam for the vessel once his own voyage was completed. [126] In 1776 Hunter and Smith wrote:

> we can easily gets contracts for a cargo or two to Glasgow, ready money. The merchants of that place are flush just now owing to the sales of tobacco which also makes freights reasonable being full out and home. [127]

The freight rate for shipping a cargo of Fir timber from Memel to Scotland was determined by a series of different factors: obviously the demand for Fir timber was a primary importance; during the economic slump in 1773 Inglis told Captain George Rutherford of Dysart:

> the demand you make is by far too much, freights this year will be 19 to 15 per cent lower than last, for reasons very obvious. The freight from Memel to Newcastle is 17 to 18/6d per load but I will offer 19/- with provision you take the trouble of purchasing and choosing the cargo of the best goods.[128]

The cost of freight could also decline during times of prosperity; in 1785 Cadell of Carron Park pointed out that so much Fir timber had been imported during 1784 that the Firth of Forth was overstocked and freight rates were falling.[129]

To some extent a fall in the freight was not immediately translated into a similar decline in the retail cost of Fir timber; during 1773 Inglis' retail price for Memel Fir timber remained steady, although the freight rate had fallen - Inglis claimed the prime cost in Memel had risen to balance any saving in freight.[130]

The most serious influence on freight rates was war and the activities of privateers, as the annual freight rates shown in Table 28 make clear. However, the danger to British shipping from the enemy was not the only reason behind increased costs during wartime; in 1778 Hunter and Smith wrote that:

> we could not deliver Memel at under 1/- per foot and even that will be too low if the present impress continues, as will insurance when we eventually break with France..there is no freights named for the Clyde from the Baltic and we can apprehend no offer that can be made will tempt Masters to undertake the voyage.[131]

Although the activities of their press gangs may have pushed up freight rates Royal Navy convoys to and from the Baltic helped to reduce insurance

costs; in 1779 Hunter and Smith insured the Diana and her cargo of Memel balks for 5 guineas per £100. but almost half their premium was returnable if the vessel sailed with the convoy - Andrew Beall, the vessel's captain, was told:

> we insured your vessel out and home yesterday at a very high premium which makes the freight extravagent but we hope you'll recompense us by bringing a good cargo.[132]

Fluctuations in the freight rate from Memel had a dramatic effect on the retail price of Fir timber in Edinburgh; in 1772 with freight costing 19/- per load Inglis could sell a full cargo of timber for 9 3/4d per cubic foot.[133] In 1777 Inglis' successors, Hunter and Smith paid 22/- per load for freight and sold their timber at 11d per cubic foot. That year they told James Trotter of Minto that their price for Memel Fir timber had risen by 1d per cubic foot and 'prices are still expected to rise owing to the high price of freight last and this season.'[134] The rising cost of freight also appears to have tightened their profit margins:

> we have no doubt but that you are sensible the freights to Memel have advanced this year from 15 to 20 per cent and when that is considered our profit will be very small.[135]

Hunter and Smith must have found some leeway in their costs as in 1779 when freight rose to 25/- per load they could still sell a full cargo of Memel balks for 12d per foot. However, as the war continued and freight rates rose the retail price of Hunter and Smith's Memel Fir timber had to increase. During the 1780 shipping season they sold timber at 13d per foot; freight rates had risen to 27/- in August 1780, 'this is a monstrous freight' and to 30/- in September. ' we are astonished at the amazing heights freights have got up to.'[136] In 1781 when they had to pay 31/6d per load for freight Hunter and Smith sold the Fir timber for 14d per cubic foot, and when freight reached 37/6d the retail price rose again to 15d per cubic foot.[137] As Table 28 shows in 1782 the London freight rate reached 53/- but after the capture of two of their freighted

vessels by privateers Hunter and Smith had discontinued business.

In the period before 1790 fluctuations in the freight rate were the major cause of changes in the retail price of Fir timber in Scotland; however, as Sven-Erik Astrom has shown, the significance offreight costs in relation to retail prices declined substantially during the latter part of the eighteenth century. [138] After 1790 rises in the prime cost of Memel Fir timber and in import duty both became important contributors to increasing retail prices, indeed, 1790 was the first year in which the prime cost of Memel balks exceeded the cost of freight. [139]

Astrom has shown that in the period 1760 to 1810 the retail price of Baltic Fir timber doubled in relation to the cost of freight, because retail prices rose more quickly than the freight rate. As shipping costs were such a substantial part of the retail cost of Fir timber for the more distant ports then a fall in the importance of the 'freight rate factor' by half increased the profitability of Baltic Fir timber vis a vis its Norwegian competition where freight costs were less important. [140]

Detailed evidence from the Scottish Fir timber trade illustrates the increasing attractiveness of the Memel trade; in 1772 the various freight rates for a load of Fir timber to the east coast of Britain were; 12/- from Norway, 20/- from Memel, 23/- from Riga and 25/- from St.Petersburg. [141] In Edinburgh in 1772 the retail price of Norwegian Fir timber was 9d per cubic foot; freight accounted for only 32 per cent of this, as opposed to 52 per cent of the retail cost of Memel Fir timber. Therefore, a decline in the proportional share held by freight benefitted the more distant port. In 1791 the Lovely Mary carried cargoes of Fir timber to Leith from Christiansand in Norway and Memel in Prussia; freight from Christiansand was charged at 10/- per load and from Memel at 16/- per load, while the retail prices were 12½d and 14½d per cubic foot respectively. [142] The freight rate's share of the retail price of Norwegian Fir timber had fallen from 32 per cent in 1772 to 19 per cent in 1791, but for Memel, where freight costs contributed more significantly to the retail price of Fir timber, the freight rate factor was halved, from 52 per cent in 1772 to 26 per cent in 1791.

The third major influence on the retail price of Memel Fir timber in Scotland was the import duty levied on every load (50 cubic feet) when it arrived in port. In common with the duty on deals the charge for Fir timber remained stable (at 3/8d per load) until 1787 and Pitt's Consolidation Act when it increased to 6/8d; however, during the last decade of the century the level of import duty rose rapidly to help offset the financial burden of the war against France, as the following table shows.

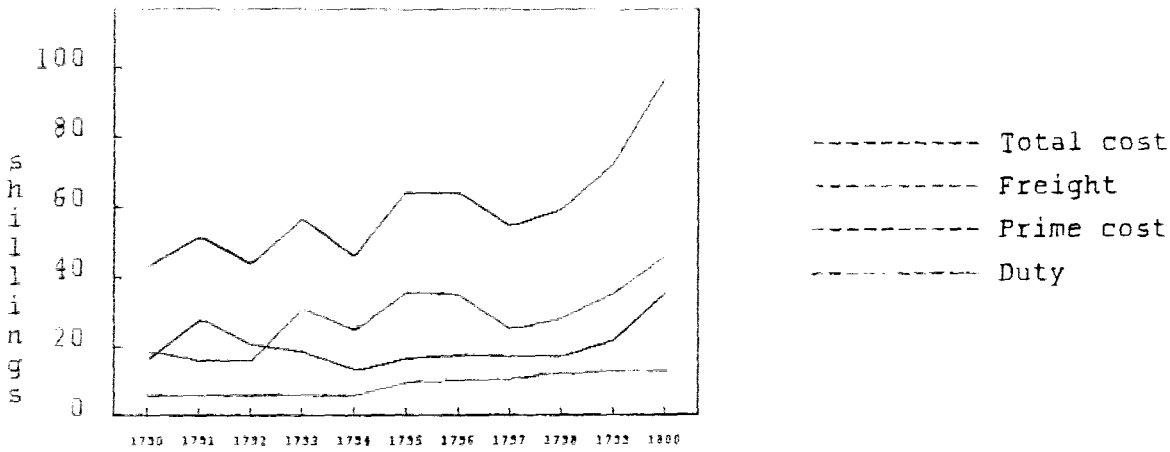
British Import duty per load of Fir timber [143]

1765	3/8d
1787	6/8d
1795	10/-
1796	10/6d
1797	11/1d
1798	12/9d
1799	13/3d

The end of the eighteenth century also foresaw the end of an era with the collapse of the European timber trade; in 1800 Europe supplied over 99 per cent of Britain's Fir timber needs, by 1820 it supplied less than 20 per cent of imports. [144] The rapid increase in duty from 1795 to 1799 was a prelude, a sign of things to come; this increase had been for fiscal reasons, however, as the war continued government policy on duty shifted to strategic considerations. Rather than leave itself at the mercy of politically unstable suppliers in Northern Europe, especially after Napoleon formed his continental blockade, Britain developed a mercantilist policy aimed at stimulating Canadian timber production. Import duty on European supplies was increased to form a protective tariff to offset the higher Atlantic freight rate. [145] Duty rose until 1819 when it peaked at £3. 5/- per load, by contrast, no duty was charged on Canadian imports before 1821. [146]

The price-raising effect of increases in prime cost, freight rates and import duty on the price of Memel Fir timber in Britain between 1790 and 1800 is shown in the following graph.

Cost of Fir timber, per load, Memel to London 1790 to 1800. [147]



During the period between 1776 and 1783 the fluctuations in the retail price of Memel Fir timber in Scotland were almost solely due to increases in the cost of freight. By contrast, the even larger increases in the retail price which occured during the 1790's happened because of rises in prime cost and import duty as well as freight costs. Some indication of this increase in retail price during the 1790's is provided on the previous page, although the graph was compiled from London-based prices. Precise information on the increase in retail prices is Scotland is available in the account books of James Allan, an Alloa timber merchant, for the 1790 to 1793. [148]

Retail price of Memel Fir timber, per cubic foot, Alloa 1790-1793.

April-July	1790	11½d
July-December	1790	14d
January-March	1791	14½d
March-December	1791	15d
January-December	1792	14½d
January-August	1793	18d
September-December	1793	17d

In common with the London statistics Allan's retail prices show sharp increases in the latter part of 1790 and in 1793. Because of the close correspondence between the London figures and the available Scottish prices it appears likely that the retail price of Memel Fir timber in Scotland rose substantially during the 1795 and 1796 and again from 1798 until it peaked in 1800.

Although merchants such as Inglis, Hunter and Smith and James Allan have all left detailed accounts for specific periods it is not possible to construct an annual record of the retail price of Memel Fir timber in Scotland; the retail price was dependent on a great variety of different influences: these included,the length and quality of each balk, the time of the year when it was purchased, the part of Scotland it was shipped to and the demand for timber at that time. The amount of timber purchased could also effect the retail price; Inglis charged up to 2d

per cubic foot more for small sales compared to whole cargoes. Moreover, the retail prices in ports such as Bo'ness and Leith were seldom the final cost; one great advantage of purchasing Memel balks was that they could be sawn to the customer's own specifications, however, in Leith in 1773 this service added 1d to the retail price of 10½d per cubic foot.[149]

Transportation from the coast was also a major addition to the price of Memel Fir timber; in 1777 it cost 5d per cubic foot to cart Memel balks from Leith (where they had cost 12d per cubic foot) to Melrose, a journey of less than 50 miles - it had cost a similar amount to ship the same timber 932 nautical miles from Memel to Leith. [150]

The combination of Napoleon's continental system and the efforts of the British government to safeguard timber supplies completely changed the pattern of timber imports into Scotland during the first decade of the nineteenth century. However, even before the collapse of Scandanavian and Baltic imports in 1809 warfare and government policy had influenced the timber trade; by 1800 the rapid rise in freight costs and import duties had pushed up Fir timber prices to an unprecedented level.

The year 1800 is an eminently suitable year to conclude this study of Prussian Fir timber trade with Scotland, because in that year evidence appeared in the Inspector-General's annual report which allows a detailed statistical survey of the timber trade to be made. In 1800 the effects of the government Act 38 Geo III, c76 were first recorded in the Inspector-General's report. This Act was introduced to raise money to offset the cost of convoys for merchant ships, and one result was the inclusion of 'Declared Value' in the import-export tables. [151] The 'Official Price' for each item listed in the Inspector-General's reports had remained unchanged since 1755: moreover,these figures only recorded the price at the point of export, that is in modern terms 'f.o.b.' or free on board ship. This meant that the Official price for Fir timber (shown for example in Appendix 1 for 1755) excluded the cost of freight and import duty, both of which accounted for most of the retail price of Fir timber in Scotland. However, the 'Declared value' provided for each item in 1800 recorded the complete cost of timber

imports to importing merchants or 'c.i.f.' and so provided a far better indication of the relative value of imported timber items. [152]

Appendix 2 is drawn from the Inspector-General's report for 1800; the table lists all recorded imports of softwood timber items with a total Official value of over £50. it includes the amount of each item carried in British or native vessels (only Norway had a significant merchant fleet of her own), the Official price, the Official value and the Declared value - the Declared price was found by dividing the Declared value by the amount of each type of timber imported. [153]

The total Declared value for all softwood timber imports from each country was as follows.

Prussia	£72,356
Norway	64,792
Russia	16,484
Sweden	7,575
Poland	5,304
Germany	1,374
Total	167,885

The object of this study, Prussian Fir timber, accounted for 35 per cent of the total Declared value of imported softwood timber, with 14,356 loads of Fir timber giving a Declared value of £59,204 - making the Declared price 1/8d per cubic foot. Because of the greater significance of freight in the price of Fir timber from the Baltic the Official prices tended to underplay its relative importance compared to deals. In fact, Fir timber from various sources was the single most important softwood timber item imported into Scotland, accounting for 53 per cent of the total Declared Value.

	British vessels	Foreign vessels	Declared price	Declared value
Prussia	14,195 loads	161 loads	1/8d per ft³	£59,204
Norway	268 "	7,399 "	1/8d " "	28,469
Poland	432 "		1/4d " "	1,483

The next most important item imported was Ordinary deals with a total Declared value of £40,492 or 24 per cent of the total. Scotland's imports of Prussian Fir timber accounted for 35 per cent of the Declared value of all her softwood timber imports.

FOOTNOTES

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CONCLUSION

The importation of softwood timber was of fundamental importance to the Scottish economy in the eighteenth century: timber imports, quite literally, provided the very fabric of Scotland's economic development. Scotland's inadequate native timber resources could not supply the level and quality of material required. Therefore, imported timber provided the raw material for the construction industry in a period of rapid economic expansion. Deals and balks from the Scandinavian littoral and, increasingly from the Baltic, were basic necessities for various sectors of the Scottish economy, especially housing, industry and transport. Indeed, it is transport in the form of shipping statistics, which provides the clearest indication of the importance of the timber trade to the Scottish economy. Although softwood timber only accounted for approximately one-tenth of the value of Scotland's foreign imports, approximately one-third of all vessels arriving in Scottish ports each year carried timber cargoes.

During the period 1680 to 1800 Scotland's timber trade underwent significant structural changes in the source, form and level of imports. Geographically the source of Scotland's timber imports shifted from western Norway into the Baltic. The form of imports changed from cut timber deals to squared timber balks. The level of imports also changed; in the 1680's Scotland imported approximately 3,000 great hundred deals annually, by 1800 deal imports had risen slightly to 3,500 great hundreds, but the trade was dominated by the import of almost 22,500 loads of Fir timber, of which Prussia supplied nearly 14,500 loads.

The source of timber which suffered most from the structural changes in the Scottish timber trade was Norway. From a position of almost total dominance in the 1680's Norwegian supplies declined to providing only 38 per cent of the value of imports in 1800. Nevertheless, although the timber trade with Norway suffered a relative decline during this period it does illuminate several important aspects of the timber

trade in general. For example, Scotland's growing preference for Fir timber pre-dated the arrival of Baltic supplies. During the 1740's an increasing number of shipments arriving in Scotland from Norway came from the Agder ports of southern Norway, because of that region's ability to provide mixed cargoes of Fir timber and deals. By 1800, Fir timber and smaller, middle balks made up 59 per cent of the value of timber imports from Norway - a development which mirrored the change in form experienced by the Scottish timber trade as a whole. Similarly, during the period from 1680 to 1800 the Scottish - Norwegian timber trade shifted in orientation from western to eastern Norway - a trend which paralleled the general eastern shift into the Baltic.

Norway declined as a supplier of softwood timber to both Scotland and the European market as a whole due to the over-exploitation of its natural resources. By the latter part of the eighteenth century Norwegian merchants were increasingly struggling to provide larger sizes of timber and to meet rising demand. However, it is an indication of the limitations and immaturity of the Scottish economy that Scots played little part in the organisation and financing of the opening up of new forests to exploitation. Newer production areas were opened up to Scottish purchasers in Sweden during the 1740's and Prussia during the 1760's, but the Scots relied on others blazing the trail. Thomas Shairp, the British Consul in St. Petersburg during the 1770's,was the only Scot active in the growth of the Baltic timber industry in the new areas of supply. Shairp held a Russian government contract to exploit untouched forest stands. However, Shairp's activities were centred on trade with London where he was a leading member of the Russia Company. By contrast, by the early nineteenth century demand within the Scottish economy had grown to such an extent that timber merchants were involved in vertically backward integration: securing their supplies by purchasing and developing new forest regions. Scottish merchants such as Dickson and Salvesen were leading investors in the opening up of virgin

forests in Sweden and Finland.

Although the Scottish infrastructure was inadequate for extensive operations such as financing new production areas, there was no lack of initiative within the Scottish mercantile community. For example,the first major change in Norway's dominance of the Scottish timber market took place between the 1730's and the 1750's. By the latter date the Swedish part of Gothenburg supplied approximately half of Scottish deal imports. Moreover, this development took place during a period of relative stagnation in the deal market: change was not only the result of increased demand.

Increasing Scottish deal imports from Gothenburg may be explained by a series of factors; the partial lifting of restrictions on forest use by the Swedish Government; technological advances in Swedish saw-milling techniques; the city's role as a centre for political refugees, and growing commercial activities such as the iron trade and tea smuggling. However, while cargoes such as tea or bar-iron may have contributed indirectly to the timber trade, the evidence clearly shows that Gothenburg deals were accepted in Scotland in their own right and not simply as ballast or as legitimate cover for smuggled goods.

Scotland's deal trade with Gothenburg is perhaps the most fascinating aspect of Scotland's timber trade, because it is the only time when the Scottish market was not following trends general to the European timber trade or exploiting the pioneering activities of others. Scotland was the single major purchaser of Gothenburg deals.

The rise in deal imports from Gothenburg owed something to the establishment of a Scottish merchant community in the city during the 1730's and 1740's. However, the activities of these men, and also the Scottish merchants who spread into the Baltic ports, illustrate the lack of complexity in the Scottish trade.

Although substantial numbers of Scottish merchants settled in Gothenburg, and then subsequently in Baltic ports such as Danzig, St. Petersburg and Memel, their link with the Scottish economy was tenuous. The Scottish factors of the late seventeenth century were part of the Scottish infrastructure, maintained by, and servicing the nation's foreign trade. However, the large number of merchants who worked in Sweden and the Baltic during the eighteenth century should perhaps be seen more as economic migrants. For example, James Carnegie-Arbuthnott in Gothenburg was concerned primarily with bar-iron exports to Hull in England, the timber trade with Scotland was of minimal importance. Also, the British Consuls in Memel, Byres and Durno, both happened to be Scots, but they specialised in flax exports to England. Moreover, merchants in Scotland did not rely on fellow nationals abroad: James Inglis Jnr. corresponded with many foreign merchants, and he was as likely to use Franz the Prussian as Byres the Scot to purchase a cargo of Memel timber. Indeed, Inglis held all Memel merchants, Scots or no, in equal disdain.

Nevertheless, the passing of the factor system, may be seen as a sign of a more mature Scottish economy. This growing complexity may also be observed in the merchant community at home. Most merchants, such as Inglis or Hunter and Smith, were general traders dealing in a range of goods. However, the Glasgow firm of Bogle and Scott specialised in importing timber. Moreover, a more complex form of business organisation, involving vertical forward integration, may be seen when Bogle and Scott used their own timber imports in the building trade.

Scottish demand for deals stagnated in comparison to the rapid expansion in Fir timber imports. However, during the latter part of the century an increasing proportion of the deal market was met by supplies from the Russian port of St. Petersburg. By 1800 Russian deals accounted for almost 30 per cent of the Declared value of Scottish deal imports. The

increasing importance of Russian deal imports, even in a stagnant market, reflected the changing nature of demand within Scotland, because Russian deals were larger and of better quality than their Swedish and Norwegian rivals.

The pattern of Scotland's timber trade was not simply influenced by Scottish demand for various quantities and qualities of timber. Indeed, to some extent Scotland was participating in a European timber trade over which the Scottish market had only limited influence. Scotland's choice of the source and form of its timber imports owed a great deal to government policies and interference. For example, the rise of Russian deal imports owed much to the policies of the Swedish, Russian and British governments. Swedish deals were priced out of the market by discriminatory levies imposed on British vessels by the Swedish government. By contrast, the Russian government encouraged deal exports through low export tariffs and by linking them to the burgeoning bar-iron trade. Perhaps the greatest influence on Scotland's import of Russian deals was the British government's policy towards import duties. Timber imports from Russia gained much from the manner in which Britain organised timber import duties; the wide perameters of these duties, with regard to size encouraged the import of larger lengths of deals and battens which only Baltic sources could supply. This advantage was enhanced from 1787 onwards with the rapid increase in the level of British import duties.

Government regulations were also an important factor in the growth of Memel as a source of Fir timber. The port's role as a major source of Fir timber owed much to the discriminatory tariffs imposed on exports from its rival ports, Danzig and Riga.

Scottish demand for balks of Fir timber grew rapidly during the 1760's, after the end of the Seven Years War, and Memel quickly established itself as Scotland's major source of

balks. By 1768, less than a decade after they were first imported, Memel balks supplied over 72 per cent of Scotland's Fir timber imports. Following another rapid increase in imports after 1783, imports of Memel balks reached a high point of 25,178 loads in 1792.

Growing demand from Scottish economic expansion, and government regulations which stifled its rivals, were not the only factors which encouraged imports of Memel Fir timber. For example, technological developments in saw-milling in Scottish ports encouraged Fir timber imports which could then be sawn to meet individual needs. It has been argued that a relative decline in transport costs led to Scotland drawing imports from more distant sources. However, while a fall in the relative cost of freight may have enhanced the advantages enjoyed by more distant sources such as Memel, this cannot be used to explain Scotland's change in the geographical source of timber imports. After all, Memel was already Scotland's leading source of Fir timber by the late 1760's, but Astrom dates the decline in the importance of freight from between 1760 and 1810, so the process had hardly begun by that point. Moreover, falling transport costs cannot explain the preference for Memel rather than Riga, its close neighbour.

A study of Scotland's rapidly expanding timber trade provides valuable insight into the growing sophistication and complexity of Scottish trade practices during the latter part of the eighteenth century. Given the importance of Memel Fir timber within the timber trade and the economy as a whole, it is not suprising that these more mature trade practices may be seen in the financing and shipping of Memel balks. For example, Scottish merchants such as James Inglis Jnr. developed commercial connections with London, Amsterdam and Rotterdam. Inglis' bankers in England and Holland provided both bills of exchange and general commercial intelligence. Inglis also used English ship brokers such as Hamilton and Rogerson to arrange vessels for his cargoes.

The organisation of shipping within Scotland also showed signs of increasing specialisation. Inglis, a general merchant, owned part-shares in several vessels. Most vessels appeared to belong to multiple shareholding groups organised by a managing owner. It was to these managing owners that merchants went to procure vessels, men such as Sebastian Swinton of Inverkeithing, a one time ship captain himself. Other brokers included William Deas of Alloa and Charles Addison of Bo'ness.

Often the ship's captain was a part-owner. Several Scottish skippers specialised in the timber trade with Memel. Their responsibilities grew to include the selection of timber in Memel. Such men were actively sought out by importers, captains from Dysart were particularly admired for their skill. One function of the growing level and sophistication of the timber trade was the decline in the use of the supercargoes, their duties were now performed by the captain.

The rapid growth in the level of the Scottish timber trade and the increased sophistication of trade practices provide a valuable insight into the economic development of one of the most rapidly industrialising areas of Britain - the Scottish central belt. However, it also highlights the increasing regional duality within Scotland, between the increasingly mature economy of the central belt and the rest of Scotland. Orkney had its own distinct reasons for continuing with its traditional form of timber trade; proximity, economic ties through rental payments and the grain trade. However, Orkney's experience does exemplify the lack of change found in the smaller ports of northern and southern Scotland.

Finally, can the structural change in the Scottish timber trade between 1680 and 1800 be seen as a Scottish success story? Certainly the rapid growth in the level of imports indicates the expansion of the economy. Scottish merchants

were quick to take advantage of new sources of timber and they developed more sophisticated forms of business practice. The vast majority of timber imports arrved in vessels owned and manned by Scots, and Scottish captains quickly became expert in their new role. However, while individual Scots showed great initiative in exploiting new economic opportunities, the timber trade also indicates the limitations of the Scottish economy. The Scottish economic infrastructure was too inadequate to support operations such as opening up new production areas. Scottish merchants abroad could not support themselves through trade with Scotland alone. Scotland's financial sector was not large enough, and Scottish bills of exchange were seldom acceptable. Foreign trade was financed through the London and Amsterdam money markets. Lastly, although the timber trade was mostly carried in Scottish vessels, their freight rates, such an important part of the final cost of imported timber, were dependent on London's demand for shipping. The price which Scots paid for their timber. so fundamental to their economy, rose and fell with London's need for Newcastle coal or Russian flax.

STATISTICAL TABLES

Table 1.

Norwegian port books, exports to Scotland, no. of vessels and cargo carried.

	1731		1733		1755		1785	
Port.	Ships	Lasts	Ships	Lasts	Ships	Lasts	Ships	Lasts
Trondheim	9	248	8	197	3	292	7	126
Kristiansund	37	767	32	553	10	456	2	15
Molde	3	46	8	148	3	159	9	171
Bergen	30	273	19	221	24	493	47	1062
Sunnhordland	62	1217	59	1054	0	0	0	0
Stavanger	4	114	8	109	0	0	1	22
Flekkefiord	12	167	11	132	12	271	5	138
Mandal	25	330	17	305	7	196	7	305
Christiansand	15	212	15	293	25	971	41	1949
Arundal	29	779	26	724	9	430	8	357
Oster-risor	6	150	3	94	4	277	5	433
Kragero	2	57	0	0	1	44	0	0
Langesund	3	61	5	125	6	163	0	0
Larvik	3	102	2	44	0	0	0	0
Drammen	2	46	2	47	0	0	0	0
Moss	2	36	2	44	1	59	0	0
Christiania	1	18	2	34	1	48	1	38
Fredrickstad	0	0	1	33	0	0	2	74
	245	4623	220	4157	106	3859	132	4690

Table 2.

Scottish deal imports, per dozen, 1744

Customs Precinct.	Norway	Sweden	Poland	Total
1.Leith	1894	1912	-	3806
2.Greenock	1952	692	-	2644
3.Prestonpans	800	598	-	1398
4.Port Glasgow	1388	-	-	1388
5.Montrose	470	684	-	1154
6.Aberdeen	828	282	13	1123
7.Kirkcaldy	918	-	189	1107
8.Bo'ness	633	362	-	995
9.Anstruther	308	520	-	828
10.Alloa	819	-	-	819
11.Irvine	800	-	-	800
12.Dundee	741	30	-	771
13.Wigtown	642	-	-	642
14.Ayr	495	12	-	507
15.Campbeltown	383	48	-	431
16.Dumfries	225	88	-	313
17.Stranraer	272	-	-	272
18.Dunbar	-	245	-	245
19.Fort William	218	-	-	218
20.Thurso	130	53	-	183
21.Inverness	100	45	-	145
22.Perth	-	104	-	104
23.Kirkcudbright	84	-	-	84
24.Orkney	10	-	-	10
25.Shetland	8	-	-	8
Total	14118	5875	202	19995

Table 3

Scottish deal imports, per dozen 1755.

Customs Precinct.	Norway	Sweden	Poland	Prussia	Russia	Total
1.Leith	1122	2660	16	14	63	3875
2.Greenock	3330	118	-	8	13	3469
3.Aberdeen	1751	658	75	57	-	2541
4.Bo'ness	431	1112	45	-	-	1588
5.Alloa	778	798	-	-	-	1576
6.Prestonpans	439	999	-	-	-	1438
7.Dundee	443	847	3	28	31	1352
8.Dunbar	624	587	-	-	-	1211
9.Montrose	573	376	73	-	-	1022
10.Perth	109	751	15	-	-	875
11.Ayr	763	60	-	-	-	823
12.Irvine	525	13	-	-	-	538
13.Kirkcaldy	342	93	30	-	-	465
14.Inverness	140	223	30	-	-	393
15.Port Glasgow	137	87	62	-	-	286
16.Orkney	145	95	-	-	-	240
17.Thurso	214	-	-	-	-	214
18.Anstruther	108	73	22	-	-	203
19.Campbeltown	130	70	-	-	-	200
20.Stranraer	175	-	-	-	-	175
21.Dumfries	5	85	-	-	-	90
22.Kirkcudbright	-	60	-	-	-	60
Total	12284	9765	371	107	107	22634

Table 4

Scottish deal imports, per dozen, 1765.

Customs Precinct.	Norway	Sweden	Russia	Poland	Prussia	Total
1.Leith	2186	2223	1852	58	23	6341
2.Greenock	4737	864	186	160	2	5948
3.Bo'ness	1038	2200	610	20	47	3935
4.Alloa	1097	2139	3	13	15	3267
5.Aberdeen	2866	220	-	5	-	3091
6.Dundee	1238	825	149	-	-	2212
7.Irvine	1957	62	-	-	4	2016
8.Prestonpans	538	1201	115	-	3	1859
9.Ayr	1623	56	-	-	-	1680
10.Perth	623	833	-	15	-	1471
11.Kirkcaldy	1021	392	15	10	-	1438
12.Montrose	601	293	259	5	10	1169
13.Port Glasgow	25	735	52	48	10	870
14.Dumfries	93	510	15	45	-	662
15.Dunbar	179	408	-	-	-	586
16.Inverness	98	173	225	-	-	475
17.Anstruther	265	190	-	-	-	455
18.Campbeltown	394	-	-	-	-	394
19.Thurso	335	-	-	-	-	335
20.Kirkudbright	53	277	-	-	-	329
21.Stranraer	325	-	-	-	-	325
22.Orkney	229	69	-	-	-	298
23.Shetland	86	-	-	-	-	86
24.Stornoway	40	-	20	-	-	60
Total	21647	13670	3501	379	114	39302

Table 5

Scottish deal imports, per dozen, 1775

Customs Precinct.	Norway	Sweden	Russia	Prussia	Poland	Total
1. Leith	821	935	1118	78	5	2957
2. Aberdeen	1976	615	8	45	50	2694
3. Greenock	1501	370	36	16	-	1923
4. Prestonpans	666	851	143	30	-	1690
5. Dundee	834	436	370	35	2	1677
6. Irvine	1489	84	9	14	-	1596
7. Bo'ness	859	282	287	7	-	1435
8. Montrose	917	33	60	-	5	1015
9. Alloa	125	782	-	45	8	960
10.Ayr	806	95	-	5	-	906
11.Perth	50	800	-	48	-	898
12.Dunbar	187	227	59	119	-	592
13.Port Glasgow	346	-	203	-	-	549
14.Dumfries	-	490	27	-	-	517
15.Anstruther	267	163	-	3	-	433
16.Wigtown	168	138	-	10	-	316
17.Inverness	113	90	80	10	-	293
18.Orkney	175	-	-	10	-	185
19.Shetland	178	-	-	-	-	178
20.Kirkcudbright	-	-	139	3	-	142
21.Thurso	120	-	-	-	-	120
22.Kirkcaldy	6	63	8	31	-	108
23.Campbeltown	50	-	-	-	-	50
24.Stranraer	-	-	-	36	-	36
25.Stornoway	30	-	-	-	-	30
Total	11684	6454	2547	545	70	21300

Table 6

Scottish deal imports,per dozen,1785.

Customs Precinct.	Norway	Sweden	Russia	Prussia	Poland	Total
1.Bo'ness	2431	1792	983	149	10	5365
2.Leith	2040	612	1046	384	3	4088
3.Aberdeen	1824	1024	148	104	134	3215
4.Greenock	1598	118	559	3	10	2266
5.Dundee	1353	433	206	113	-	2104
6.Alloa	447	1530	-	19	-	2076
7.Perth	206	1301	135	55	-	1698
8.Montrose	1246	95	6	30	-	1377
9.Prestonpans	317	698	190	18	-	1242
10.Port Glasgow	559	-	527	18	-	1104
11.Dunbar	453	378	140	14	-	986
12.Irvine	652	266	-	42	-	959
13.Kirkcaldy	296	436	2	85	1	820
14.Anstruther	506	103	11	10	-	630
15.Wigtown	183	286	-	-	-	479
16.Thurso	401	-	-	-	-	401
17.Orkney	298	-	60	-	-	358
18.Dumfries	-	153	160	9	-	322
19.Ayr	210	80	-	18	-	317
20.Stranraer	270	-	-	22	-	292
21.Portpatrick	98	98	-	-	-	195
22.Stornoway	150	-	-	-	-	150
23.Shetland	145	-	-	-	-	145
24.Kirkcudbright	-	-	-	86	-	86
25.Inverness	-	15	8	10	18	51
26.Campbeltown	40	-	-	-	7	47
27.Glasgow	-	20	-	-	-	20
Total	15723	9438	4181	1189	183	30793

Table 7
Scottish deal imports, per dozen, 1795.

Customs Precinct.	Norway	Sweden	Russia	Prussia	Poland	Total
1.Bo'ness	5338	1076	2092	161	-	8667
2.Leith	873	415	2435	220	-	3943
3.Perth	397	2239	-	46	3	2685
4.Dundee	974	217	243	4	-	1438
5.Alloa	-	1143	-	61	-	1204
6.Prestonpans	262	468	360	45	-	1135
7.Aberdeen	816	74	60	28	33	1011
8.Greenock	512	267	10	15	-	804
9.Montrose	489	112	69	75	27	772
10.Dunbar	46	692	-	4	-	742
11.Kirkcaldy	217	459	30	21	12	739
12.Dumfries	-	344	-	44	-	388
13.Ayr	3	350	12	15	-	380
14.Anstruther	51	268	3	31	-	353
15.Irvine	28	223	-	30	-	281
16.Stornoway	215	-	-	-	-	215
17.Stranraer	186	-	-	-	-	186
18.Wigtown	-	77	-	18	-	95
19.Orkney	10	-	52	-	-	62
20.Port Glasgow	45	-	-	-	-	45
21.Shetland	43	-	-	-	-	43
22.Kirkcudbright	-	-	42	-	-	42
23.Inverness	-	-	8	-	-	8
24.Thurso	-	-	-	-	2	2
25.Tobermory	-	-	2	-	-	2
Total	10505	8424	5376	818	77	25200

Table 8

Scottish Fir timber imports, per load, 1744.

	Total (all from Norway)
Aberdeen	-
Alloa	69.5ft.
Anstruther	-
Ayr	-
Bo'ness	121.40ft.
Campbeltown	-
Dumfries	-
Dunbar	-
Dundee	-
Fort William	-
Greenock	66.
Inverness	-
Irvine	17.
Kirkcaldy	41.40ft
Kirkcudbright	-
Leith	173.15ft.
Lochbroom	-
Montrose	75.41ft
Kirkwall	33.25ft
Perth	-
Port Glasgow	68.
Port Patrick	-
Prestonpans	25.2ft
Shetland	-
Stranraer	-
Thurso	-
Wigtown	11.42ft

Total import 703 loads 10 feet.

Table 9

Scottish Fir timber imports, per load 1755.

	Norway	Russia	Germany	Total
Aberdeen	99.13ft	-	-	99.13ft
Alloa	185.11ft	-	-	185.11ft
Anstruther	23.36ft	-	32.6ft	55.42ft
Ayr	30.	-	-	30.
Bo'ness	30.36ft	-	-	30.36ft
Campbeltown	-	-	-	-
Dumfries	63.43ft	-	-	63.43ft
Dunbar	20.	-	-	20.
Dundee	47.46ft	34.17ft	-	82.13ft
Fort William	-	-	-	-
Greenock	45.	-	-	45.
Inverness	-	-	-	-
Irvine	103.20ft	-	-	103.20ft
Kirkcaldy	163.32ft	-	-	163.32ft
Kirkcudbright	-	-	-	-
Leith	452.33ft	167.44ft	100.48ft	721.25ft
Montrose	1.	-	-	1.
Orkney	-	-	-	-
Perth	57.20ft	-	-	57.20ft
Port Glasgow	18.	-	-	18.
Port Patrick	-	-	-	-
Prestonpans	306.44ft	-	-	306.44ft
Shetland	-	-	-	-
Stranraer	-	-	-	-
Thurso	32.24ft	-	-	32.24ft
Wigtown	-	-	-	-
Total import	1766.3ft	202.11ft	133.4ft	2101.18ft

Table 10

Scottish Fir timber imports, per load,1765.

	Norway	Poland	Russia	Prussia	Total
Aberdeen	143.39ft	33.25ft	3.	-	180.14ft
Alloa	68.14ft	33.15ft	42.34ft	68.4ft	212.17ft
Anstruther	42.28ft	-	-	-	42.28ft
Ayr	24.38ft	-	-	-	24.38ft
Bo'ness	62. 6ft	156.15ft	-	276.44ft	495.15ft
Campbeltown	40.47ft	-	-	-	40.47ft
Dumfries	106.39ft	69.1ft	50.	-	225.40ft
Dunbar	27.	-	-	-	27.
Dundee	135.46ft	-	20.34ft	37.	193.30ft
Fort William	-	-	-	-	-
Greenock	216.21ft	918.17ft	140.	102.29ft	1432.17ft
Inverness	-	-	602.44ft	-	602.44ft
Irvine	-	-	-	2.	2.
Kirkcaldy	46.40ft	-	49.41ft	-	96.31ft
Kirkcudbright	20.	-	-	-	20.
Leith	146.25ft	139.46ft	373.29ft	264.43ft	927.43ft
Montrose	-	7.34ft	5.3ft	105.2ft	172.30ft
Orkney	-	-	27.	-	27
Perth	53.12ft	-	-	-	53.12ft
Port Glasgow	-	-	-	-	2.
Port Patrick	-	-	-	-	-
Prestonpans	62.30ft	-	137.19ft	65.49ft	265.48ft
Shetland	-	-	-	-	-
Stornoway	-	-	-	1.33ft	1.33ft
Stranraer	-	-	-	-	-
Thurso	-	-	-	-	-
Wigtown	-	-	-	-	-
Total import	1197.35ft	1358.3ft	1452.4ft	924.4ft	4931.46ft

Table 11

Scottish Fir timber imports, per load, 1775.

	Norway	Prussia	Russia	Poland	Total
Aberdeen	45.18ft	177.5ft	-	23.15ft	245.38ft
Alloa	6.14ft	365.27ft		-	371.41ft
Anstruther	44.12ft	60.	-	-	104.12ft
Ayr	28.27ft	57.	-	-	5.27ft
Bo'ness	63.	357.25ft	-	-	420.25ft
Campbeltown	-	-	-	-	-
Dumfries	-	-	632.45ft	-	632.45ft
Dunbar	72.39ft	280.14ft	-	-	353. 3ft
Dundee	59.20ft	307.40ft	-	-	367.10ft
Fort William	-	-	-	-	-
Greenock	88.24ft	329. 2ft	80.	-	497.26ft
Inverness	7.	100.14ft	48.16ft	-	155.30ft
Irvine	-	189.20ft	16.	-	205.20ft
Kirkcaldy	-	147.43ft	26.	-	173.43ft
Kirkcudbright	-	130.32ft	-	-	130.32ft
Leith	146.	606.17ft	4.24ft	-	756.41ft
Montrose	44.26ft	1.22ft	64.12ft	-	110.10ft
Oban	-	-	-	-	-
Orkney	-	32.	-	-	32.
Perth	-	257.18ft	-	-	257.18ft
Port Glasgow	-	100.	-	-	100.
Port Patrick	-	-	-	-	-
Prestonpans	69.40ft	264.	-	-	333.40ft
Shetland	-	-	-	-	-
Stranraer	-	117.15ft	-	-	117.15ft
Stornoway	-	100. 3ft	-	-	100. 3ft
Thurso	-	-	-	-	-
Wigtown	9.12ft	107.18ft	-	-	116.30ft
Total import	684.32ft	4088.15ft	871.47ft	23.15ft	5668.9ft

Table 12

Scottish Fir timber imports, per load, 1785.

	Norway	Prussia	Russia	Poland	Total
Aberdeen	108.30ft	630.35ft	-	84.46ft	824.11ft
Alloa	27.30ft	955. 8ft	1.25ft	-	984.13ft
Anstruther	89.31ft	170.22ft	-	-	260. 3ft
Ayr	-	278.35ft	-	-	278.35ft
Bo'ness	24.	2309.28ft	7.6ft	8.	2348.34ft
Campbeltown	-	-	11.3ft	-	11. 3ft
Dumfries	-	193.37ft	-	-	193. 37ft
Dunbar	74.28ft	422.37ft	-	-	497.15ft
Dundee	141.13ft	748. 1ft	-	-	889.14ft
Fort William	-	-	-	-	-
Glasgow	-	-	-	-	-
Greenock	39.17ft	231.36ft	-	20.20ft	291.23ft
Inverness	-	70	-	-	70.
Irvine	82.35ft	605.29ft	-	-	695.14ft
Kirkcaldy	-	807. 2ft	-	-	807. 2ft
Kirkcudbright	-	181.36ft	-	-	181.36ft
Leith	95.28ft	3433.6ft	218.18ft	17.27ft	3764.29ft
Montrose	144.15ft	226.21ft	7.49ft	15.42ft	394.27ft
Oban	-	-	-	-	-
Orkney	-	-	6.25ft	-	6.25ft
Perth	3.	647.42ft	10.20ft	-	661.12ft
Port Glasgow	67.39ft	488.12ft	-	-	556. 1ft
Port Patrick	3.47ft	-	-	-	3.47ft
Prestonpans	-	-	-	-	499.19ft
Shetland	-	-	-	-	-
Stranraer	-	140. 9ft	-	-	140. 9ft
Stornoway	-	9.47ft	-	-	9.47ft
Thurso	-	-	-	-	-
Wigtown	-	135.38ft	-	-	135.38ft
Total import	902.13ft	12686.31ft	262.46ft	146.35ft	13998.25ft

Table 13
Scottish Fir timber imports, per load, 1795.

	Norway	Prussia	Russia	Poland	Total
Aberdeen	312.42ft	460.18ft	-	69.38ft	842.48ft
Alloa	-	773.32ft	-	-	773.32ft
Anstruther	82.11ft	390.23ft	-	-	472.34ft
Ayr	-	104.24ft	-	-	104.24ft
Bo'ness	509.1ft	2280.34ft	71.44ft	-	2911.29ft
Campbeltown	-	-	-	-	-
Dumfries	-	336.34ft	-	-	336.34ft
Dunbar	1.4ft	-	-	-	1.4ft
Dundee	193.8ft.	244.34ft	-	-	437.42ft
Fort William	-	-	-	-	-
Glasgow	-	-	-	-	-
Greenock	97.36ft	131.21ft	-	-	229.7ft
Inverness	-	-	-	-	-
Irvine	31.40ft	273.24ft	-	-	305.14ft
Kirkcaldy	70.6ft	254.4ft	-	8.	332.10ft
Kirkcudbright	-	-	-	-	-
Leith	867.39ft	2335.4ft	24.9ft	2.	3229.2ft
Montrose	93.8ft	450.26ft	1.	36.18ft	581.2ft
Oban	-	-	-	-	-
Orkney	5.2ft	-	-	-	5.2ft
Perth	363.24ft	841.41ft	-	-	1205.15ft
Port Glasgow	55.28ft.	29.30ft	-	-	85.8ft
Port Patrick	-	-	-	-	-
Prestonpans	1.39ft	784.11ft	10.	-	796.
Rothesay	-	-	-	-	-
Shetland	-	-	-	-	-
Stornoway	-	-	-	-	-
Stranraer	30.34ft	-	-	-	30.34ft
Thurso	-	-	-	-	-
Tobermory	-	-	-	-	-
Wigtown	-	102.20ft	-	-	102.20ft
Total import	2715.22ft	9793.16ft	107.3ft	116.6ft.	12781.47ft

Table 14

Scottish batten imports, per dozen, 1785.

Customs Precinct.	Norway	Sweden	Russia	Prussia	Total
1.Leith	332.	487	2270	15	3104
2.Bo'ness	1135	555	990	-	2680
3.Prestonpans	118	550	280	-	948
4.Alloa	30	845	-	-	875
5.Aberdeen	400	237	192	-	829
6.Dundee	360	145	250	-	755
7.Montrose	526	160	-	-	686
8.Greenock	345	-	78	-	423
9.Perth	-	70	130	-	200
10.Anstruther	139	20	-	-	159
11.Dunbar	68	-	70	-	138
12.Kirkcaldy	80	50	-	5	135
13.Dumfries	-	-	130	-	130
14.Port Glasgow	100	-	-	-	100
15.Irvine	10	66	-	-	76
16.Ayr	-	20	-	10	30
Total	3643	3203	4390	30	11268

Table 15

Scottish batten imports, per dozen,1795

Customs Precinct	Norway	Sweden	Russia	Total
1.Bo'ness	935	28	65	1028
2.Leith	35	122	823	980
3.Prestonpans	50	130	103	283
4.Perth	33	232	-	265
5.Dunbar	5	140	-	145
6.Dundee	48	-	88	136
7.Anstruther	-	128	-	128
8.Kirkcaldy	45	60	-	105
9.Greenock	70	-	-	70
10.Orkney	64	-	-	64
11.Aberdeen	25	15	-	40
12.Ayr	-	20	10	30
13.Montrose	-	-	17	17
14.Irvine	-	15	-	15
Total	1315	890	1106	3311

Table 16

Scottish port books,1744:Norwegian arrivals by port of departure.

	Trondheim	Kristiansund	Molde	Hordaland	Sognfiord	Bergen	Bomlofiord	Stavanger	Flekkefiord	Mandal	Christiansand	Arendal	Langesund	Larvik	Oslo	Moss	Norway	Total
Aberdeen	1	1				6	2			2	4	4						20
Alloa						1	1			2	2	2					1	9
Anstruther		1				1	2		1			1						6
Ayr			2														1	3
Bo'ness						1		1			5	1						8
Campbeltown	1										1							2
Dunbar																		-
Dundee	1					1	3		2	1		1					1	10
Fort William																	1	1
Greenock											1				1		6	8
Kirkcudbright												1						1
Kirkcaldy	1					1	3		2	1	1	4					1	14
Inverness											1							1
Irvine			2														4	6
Leith	1						1		2	1	7	2	2			1	2	19
Montrose				1		4	1		5	1		2		1				15
Orkney						1												1
Perth																		-
Port Glasgow											2						2	4
Prestonpans		1			1	1	8		1			1				2		15
Shetland						2												2
Stranraer			2													1		3
Thurso		1				2					2							5
Dumfries	1																	
Wigtown	1		2												1			4
Total	7	4	8	1	1	21	21	1	13	8	26	19	2	1	2	4	19	158

Table 17

Scottish port books, 1755: Norwegian arrivals by port of departure.

	Trondheim	Molde	Kristiansund	Bergen	Sunnhordland	Flekkefiord	Mandal	Christiansand	Arendal	Oster-risor	Langesund	Porsgrunn	Kragero	Oslo	Moss	Frederickstad	Total
Aberdeen	1			4	1	6	1	9	3		2	1		1		1	30
Alloa							3	4									7
Anstruther							1			1							2
Ayr		1						3									4
Bo'ness				2			2	1	2								7
Campbeltown											2						2
Dunbar				1						1				1	1		4
Dundee				1		1	2	2	1								7
Greenock	1	1	2					2	2								8
Kirkcaldy				2			1	1	1					1			6
Inverness								1									1
Irvine		1						3	1		1						6
Leith						1		4	3	3		1	1				13
Montrose				1		4		1		1							7
Orkney				5													5
Perth								2									2
Port Glasgow											1						1
Prestonpans								3					1				4
Stranraer								1									1
Thurso						2	2	1	1								6
Total	2	3	2	16	1	14	12	38	14	6	6	2	2	3	1	1	123

Table 18

Scottish port books, 1785: Norwegian arrivals by port of departure.

	Trondheim	Molde	Bergen	Flekkefiord	Mandal	Christiansand	Arendal	Oster-risor	Langesund	Brewick	Skien	Porsgrunn	Drammen	Oslo	Moss	Fredrickstad	Total
Aberdeen	3		9		1	13		2	1								29
Alloa			1		1		2				1						5
Anstruther			1			9		1									11
Ayr		1															1
Bo'ness					4	5		2	3			2	1	9	1	1	28
Campbeltown	1																1
Dunbar			2		1	3		1	1								8
Dundee	3	1		1	2	13				1						1	22
Greenock					1				2					3			6
Irvine		2							3								5
Kirkcaldy					1	3				2			1		1		8
Leith	1		2		1	2	5	8						3		1	23
Montrose	2	2		2	8		1										15
Orkney	1		2														3
Perth				1	1		2	1									5
Port Glasgow							1		3					1			5
Prestonpans					1	5	3										9
Portpatrick						2											2
Stranraer			2														2
Shetland			4														4
Stornoway			1														1
Thurso			8														8
Wigtown							1										1
Total	11	6	32	4	14	63	16	14	13	3	1	2	2	16	2	3	202

Table 19

Leith Precinct deal imports, per dozen, 1743 to 1795

	Norway	Sweden	Russia	Prussia
1743	2080	2060	-	-
4	1890	1910	-	-
5	1770	490	-	-
6	5270	1450	-	-
7	3600	1320	-	-
8	4250	2540	-	-
9	3000	1520	-	-
1750	2080	510	-	-
1	3200	1770	-	-
2	3490	2410	-	-
3	1680	2770	210	-
4	1260	1650	160	-
5	1120	2660	70	-
6	3800	2800	30	-
7	1610	2500	20	-
8	1400	1480	30	-
9	3180	1740	60	-
1760	1300	3190	40	-
1	2650	3390	40	-
2	2670	2330	-	-
3	4240	2870	570	6
4	2790	3050	560	-
5	2190	2220	1850	23
6	2020	2800	2000	3
7	2180	1800	1410	64
8	2640	1400	2310	19
9	1230	380	3250	185
1770	2510	1280	1420	40
1	1900	1260	3180	44
2	1400	810	2480	57
3	1720	850	2310	46
4	1060	1370	2340	22
5	820	930	1120	77
6	1230	90	1790	127
7	2080	310	2490	180
8	1500	680	1070	404
9	1310	1570	2270	146
1780	1510	800	1960	116
1	990	880	810	79
2	3000	1620	480	53
3	1260	1210	1770	319
4	1040	1380	3840	297
5	2040	610	1050	382
6	1180	930	1350	119
7	340	1720	5230	300
8	350	1420	4920	180
9	560	470	2390	565
1790	770	1340	4290	515
1	1190	740	4010	268
2	330	1110	5100	290
3	-	-	-	-
4	350	600	1340	66
1795	870	420	2430	220

Table 20

Leith Fir timber imports, 1743 to 1795 per load

	Norway	Russia	Poland	Misc.	Prussia	Total.
1743	51	1	-	-	-	52
4	178	-	-	-	-	178
5	133	-	-	-	-	133
6	137	-	-	-	-	137
7	63	-	-	-	-	63
8	114	-	-	-	-	114
9	137	2	-	-	-	139
1750	151	-	-	-	-	151
1	199	132	-	-	-	331
2	132	-	-	-	35	167
3	306	29	-	-	-	336
4	348	241	1	-	-	590
5	391	168	-	-	100	658
6	410	118	65	-	-	594
7	281	108	60	6	-	455
8	202	357	81	39	-	679
9	391	116	23	-	-	530
1760	169	110	32	-	58	370
1	292	121	28	70	134	645
2	137	11	70	149	-	367
3	329	702	200	-	83	1314
4	109	271	27	-	-	407
5	147	374	140	-	265	928
6	78	1185	118	-	291	1672
7	113	681	163	13	212	1182
8	98	224	24	26	642	1013
9	135	668	-	-	698	1501
1770	441	598	-	-	571	1610
1	270	226	-	-	826	1322
2	154	54	11	-	1408	1627
3	220	261	-	-	616	1097
4	177	72	-	-	465	714
5	146	4	-	-	606	757
6	91	-	-	-	1044	1135
7	126	1	-	-	1092	1219
8	40	68	-	34	1065	1208
9	62	43	-	-	1094	1199

Table 20 cont'd..

	Norway	Russia	Poland	Misc.	Prussia	Total
1780	97	245	-	-	530	873
1	50	-	-	-	514	563
2	123	-	-	-	609	732
3	89	-	-	-	1596	1684
4	61	449	1	-	2388	2900
5	96	218	18	-	3433	3765
6	148	304	-	-	1902	2354
7	63	473	54	-	3512	4102
8	118	312	-	-	2413	2843
9	337	587	-	-	3261	4185
1790	284	380	30	-	4432	5126
1	736	817	165	-	2919	4637
2	1177	668	2	365	4172	6385
3	-	-	-	-	-	-
4	314	128	-	-	761	1203
5	868	24	2	-	2335	3229

Table 21

Scottish deal imports, per great hundred, 1700-1754

	Sweden	Total
1700	-	2,816
1701	-	2,129
1702	-	2,498
1703	-	2,632
1704	-	3,539
1705	-	-
1706	-	1,130
1707	-	2,619
1708	-	2,322
1709	-	2,008
1710	-	1,403
1711	-	1,199
1712	-	-
1713	-	3,029
1714	-	2,601
1715	-	3,192
1716	-	2,072
1717	-	2,204
1718	-	2,663
1719	-	2,741
1720	122	3,332
1721	82	1,330
1722	113	3,272
1723	38	3,004
1724	118	3,643
1725	174	3,015
1726	301	3,003
1727	425	2,805
1728	155	3,725
1729	194	2,505
1730	216	2,790
1731	237	2,532
1732	234	2,864
1733	471	2,738
1734	285	3,016
1735	226	2,994
1736	830	2,943
1737	1,116	2,496
1738	651	2,633
1739	865	2,448
1740	522	1,730
1741	267	2,295
1742	454	2,337
1743	708	2,236
1744	594	1,784
1745	406	2,322
1746	697	2,053
1747	766	2,198
1748	1,317	1,116
1749	1,429	2,201
1750	1,537	2,443
1751	1,192	2,438
1752	1,788	2,675
1753	1,339	2,899
1754	1,565	2,272

Table 22

Scottish Deal Imports, per great hundred, 1755 to 1800.

	NORWAY	SWEDEN	RUSSIA	PRUSSIA	TOTAL
1755	1,202	1,061	11	7	2,320
1756	1,150	943	0	0	2,204
1757	761	778	0	0	1,549
1758	1,281	695	20	0	2,019
1759	1,350	950	15	0	2,372
1760	1,988	1,175	9	0	3,213
1761	1,554	1,268	34	0	2,884
1762	1,726	1,077	10	0	2,834
1763	-	-	-	-	-
1764	2,217	1,360	71	6	3,688
1765	2,089	1,397	342	9	3,867
1766	1,609	1,268	432	15	3,347
1767	1,720	818	565	24	3,151
1768	1,798	631	458	17	2,915
1769	-	-	-	-	-
1770	2,053	745	323	29	3,197
1771	2,026	1,133	540	37	3,753
1772	1,989	846	430	75	3,364
1773	1,655	752	405	61	2,873
1774	1,361	683	557	52	2,661
1775	1,263	585	318	44	2,222
1776	1,340	736	338	66	2,488
1777	1,663	1,021	674	136	3,569
1778	1,175	676	334	99	2,290
1779	1,060	742	323	54	2,196
1780	1,482	741	322	59	2,614
1781	1,854	629	329	47	2,859
1782	1,684	687	173	31	2,582
1783	1,268	789	386	122	2,574
1784	1,714	1,030	737	177	3,670
1785	1,532	1,003	400	127	3,081
1786	1,373	752	363	125	2,624
1787	1,313	780	813	150	3,062
1788	1,214	971	1,020	188	3,410
1789	1,403	767	501	229	2,914
1790	1,411	1,071	768	279	3,536
1791	1,924	1,376	1,077	152	4,543
1792	1,844	1,314	1,481	251	4,901
1793	1,068	805	938	146	2,957
1794	1,121	918	477	100	2,625
1795	1,063	854	549	65	2,531
1796	1,743	781	1,247	199	3,989
1797	1,086	374	787	68	2,324
1798	1,864	523	1,328	107	3,831
1799	2,300	694	114	130	3,244
1800	2,092	601	457	181	3,343

Table 23

Scottish Fir Timber imports, per load, 1755 to 1800.

	Norway	Russia	Prussia	Poland	Germany	Sweden	Total
1755	1600	243	0	0	114	0	1957
6	1280	189	0	0	99	0	1568
7	535	77	0	90	0	0	702
8	888	585	0	171	352	0	1996
9	390	454	0	480	0	0	1324
1760	771	261	70	573	0	93	1768
1	1065	483	115	346	121	0	2130
2	553	1112	0	427	224	0	2316
3	-	-	-	-	-	-	-
4	1229	849	339	766	0	0	3183
5	1308	1203	815	476	0	0	3802
6	971	2227	1301	790	83	0	5372
7	709	1265	2103	475	0	0	4552
8	546	547	2841	239	0	0	3934
9	-	-	-	-	-	-	-
1770	1320	1345	3019	100	0	0	5784
1	1351	738	3067	64	0	0	5220
2	849	1309	5239	194	0	0	7591
3	726	864	4618	56	0	0	6264
4	685	605	3835	0	0	0	5125
5	791	832	3871	0	0	0	5494
6	631	243	5876	225	0	0	6975
7	784	366	9377	63	0	0	10590
8	495	804	7114	0	0	0	8413
9	696	254	4360	0	0	0	5310
1780	584	67	4187	150	0	0	4988
1	785	145	4374	0	0	0	5304
2	1056	-	5449	0	0	0	6505
3	711	535	6108	0	0	109	7463
4	1019	508	12215	264	0	0	14006
5	975	455	12409	221	0	0	14060
6	937	404	13980	96	0	0	15417
7	1687	944	23052	253	0	0	25936
8	1810	702	14872	424	0	0	17384
9	2344	785	18332	117	0	0	21578
1790	3701	619	24768	795	0	0	29883
1	6240	1749	15176	484	0	276	23441
2	6148	2990	25178	906	0	205	35427
3	4266	1267	18161	485	0	125	24304
4	3120	438	11693	330	0	0	15581
5	4584	221	9791	114	0	0	14710
6	4933	257	18644	269	0	0	24103
7	3261	501	9662	336	0	0	13760
8	6374	207	17263	175	0	0	24019
9	6617	180	16965	269	0	0	24031
1800	7667	-	14357	432	0	38	22494

Table 24

Scottish Batten Imports, per great hundred, 1755 to 1800.

	Norway	Sweden	Russia	Total
1755	99	52		151
1756	102	77	-	179
1757	84	58	-	142
1758	77	53	-	129
1759	173	54	-	227
1760	112	65	-	177
1761	117	122	-	239
1762	80	86	-	166
1763	-	-	-	-
1764	297	190	-	487
1765	391	222	49	662
1766	345	234	156	735
1767	311	94	216	621
1768	418	86	129	633
1769	-	-	-	-
1770	576	94	117	787
1771	532	224	263	1019
1772	662	150	290	1101
1773	343	167	341	851
1774	169	67	206	442
1775	189	96	96	381
1776	370	163	106	639
1777	506	154	191	879
1778	200	202	136	538
1779	198	278	372	892
1780	345	197	64	631
1781	473	166	77	716
1782	537	161	43	741
1783	212	138	236	586
1784	534	253	744	1551
1785	379	416	377	1173
1786	478	298	525	1301
1787	396	303	967	1666
1788	232	214	582	1063
1789	185	231	433	848
1790	326	186	360	872
1791	459	160	640	1259
1792	508	177	751	1436
1793	159	118	119	396
1794	148	127	63	338
1795	149	97	123	369
1796	286	42	140	468
1797	249	84	295	628
1798	298	94	227	619
1799	535	58	0	593
1800	343	103	170	615

Table 25

Uncut timber imports from Norway,1755 to 1800.

	Fir timber (per load)	Middle balks (per g.h.)	Small balks (per g.h.)
1755	1600	76	64
1756	1280	49	55
1757	535	27	27
1758	888	63	46
1759	390	70	57
1760	771	93	63
1761	1065	117	68
1762	553	56	38
1763	-	-	-
1764	1229	119	109
1765	1308	121	87
1766	971	105	78
1767	709	120	71
1768	546	67	58
1769	-	-	-
1770	1320	144	85
1771	1351	153	112
1772	849	132	103
1773	726	196	73
1774	685	82	60
1775	791	110	64
1776	631	82	73
1777	784	86	88
1778	495	79	82
1779	696	90	82
1780	584	82	86
1781	785	87	77
1782	1056	115	97
1783	711	97	108
1784	1019	218	144
1785	975	165	151
1786	937	180	164
1787	1687	230	136

Table 25 Cont'd..

1788	1810	229	114
1789	2344	251	75
1790	3701	295	41
1791	6240	504	35
1792	6148	390	47
1793	4266	300	72
1794	3120	257	24
1795	4584	436	22
1796	4933	557	48
1797	3261	352	16
1798	6374	515	0
1799	6617	556	0
1800	7667	557	18

Table 26

Scottish deal imports from Norway, per great hundred, 1755-1800.

	British Vessels	Danish/Norwegian Vessels	Total
1755	886	316	1,202
1756	660	490	1,150
1757	352	408	760
1758	404	777	1,181
1759	410	909	1,319
1760	788	1,053	1,841
1761	530	938	1,468
1762	331	1,353	1,684
1763	-	-	-
1764	1,339	825	2,164
1765	1,447	571	2,018
1766	888	676	1,564
1767	979	691	1,670
1768	907	811	1,718
1769	-	-	-
1770	1,077	867	1,944
1771	956	952	1,908
1772	985	895	1,880
1773	793	536	1,329
1774	686	513	1,199
1775	629	559	1,188
1776	781	461	1,242
1777	1,112	481	1,593
1778	481	604	1,085
1779	328	681	1,009
1780	514	899	1,413
1781	277	1,462	1,739
1782	300	1,239	1,539
1783	293	292	585
1784	453	374	827
1785	535	359	894
1786	445	264	709
1787	577	585	1,162
1788	526	474	1,000
1789	613	482	1,095
1790	606	522	1,128
1791	675	935	1,610
1792	706	816	1,522
1793	227	635	862
1794	140	798	938
1795	29	909	938
1796	100	1,353	1,453
1797	153	779	932
1798	143	1,513	1,656
1799	80	1,950	2,030
1800	85	1,692	1,777

Table 27

Scottish Fir timber imports from Norway, per load, 1755-1800.

	British Vessels	Danish/Norwegian Vessels	Total
1755	1,089	511	1600
1756	872	407	1279
1757	393	142	535
1758	325	562	887
1759	146	244	390
1760	103	668	771
1761	164	902	1066
1762	78	474	552
1763	-	-	-
1764	626	603	1229
1765	574	734	1308
1766	405	566	971
1767	142	567	709
1768	188	358	546
1769	-	-	-
1770	453	868	1321
1771	361	993	1354
1772	223	626	869
1773	122	604	726
1774	302	383	685
1775	197	596	793
1776	188	443	631
1777	215	569	784
1778	135	360	495
1779	17	678	695
1780	10	574	584
1781	135	650	785
1782	21	1,035	1056
1783	102	609	711
1784	355	664	1019
1785	371	604	975
1786	274	665	939
1787	613	1,078	1691
1788	648	1,162	1810
1789	760	1,584	2344
1790	1,474	2,227	3701
1791	2,366	3,892	6258
1792	2,543	3,621	6164
1793	684	3,582	4266
1794	298	2,827	3125
1795	275	4,209	4,484
1796	407	4,527	4,934
1797	206	3,055	3,261
1798	345	6,029	6,374
1799	126	6,491	6,617
1800	268	7,399	7,667

Table 28

Cost of freight from Memel, per load of Fir timber.

	Scottish East Coast	Scottish West Coast	London
1765			16/-
1766			
1767			
1768			
1769			
1770	18 to 13/-		
1771			
1772	19 to 21/-	28/-	
1773	19/-	26/-	
1774			
1775	17 to 18/-		
1776		30/-	25/-
1777	21/-		
1778	24 to 27/-		25/6d to 22/4d
1779	25 to 28/-		24/6d to 25/6d
1780	25 to 31/6d		25/- to 28/6d
1781	31/6d to 37/6d		36/6d to 50/6d
1782	42/-		42/6d to 53/-
1783			18/6d
1784	17/-		16/6d to 16/5d
1785	18/-		16/5d
1786			15/6d
1787			15/6d
1788			15/6d
1789			15/6d to 14/6d
1790			15/6d to 21/8d
1791	16/-		15/6d
1792	16/-		15/6d
1793			30/6d
1794			24/6d
1795			35/8d
1796			33/6d to 35/8d
1797			24/9d
1798			28/-
1799	33/-	42/-	34/9d to 36/-
1800			45/6d

Table 29

Cost of Fir timber, per load, Memel to London.

	prime cost per load.	freight and port charges	misc. expenses.	duty	Total.
1765	£0.16/-	£1.0/4.	11d	3/8	£2. 0/11
1778	£0.13/5	£1.5/6	1/4d	3/8	£2. 3/11
1778	£0.11/2	£1.2/4	1/6d	3/8	£1.18/8
1779	£0.11/9	£1.4/6	1/6d	3/8	£2. 1/5
1779	£0.14/6	£1.5/6	1/6d	3/8	£2. 5/2
1780	£0.12/5	£1.5/-	1/6d	3/8	£2. 2/7
1780	£0.13/10	£1.8/6	1/6d	3/8	£2. 7/6
1781	£0.13/-	£1.16/6	1/6d	3/8	£2.14/8
1781	£0.13/3	£2.10/6	2/-	3/8	£3. 9/5
1782	£0.12/5	£2. 2/6	1/8d	3/8	£3. 0/3
1782	£0.13/7	£2.13/-	1/6d	3/8	£3.11/9
1783	£0.13/-	£0.18/6	1/6d	3/8	£1.16/8
1784	£0.12/9	£0.16/6	1/4d	3/8	£1.14/3
1784	£0.16/11	£0.16/5	1/4d	3/8	£1.18/4
1785	£0.14/1	£0.16/5	1/4d	3/8	£1.15/6
1786	£0.14/5	£0.15/6	1/4d	3/8	£1.14/11
1787	£0.14/-	£0.15/6	1/4d	6/8	£1.17/6
1788	£0.14/2	£0.15/6	1/4d	6/8	£1.17/8
1789	£0.14/8	£0.15/6	1/4d	6/8	£1.18/2
1789	£0.12/5	£0.14/6	1/4d	6/8	£1.14/11
1790	£0.11/4	£0.15/6	1/4d	6/8	£1.14/10
1790	£1. 1/6	£1. 1/8	1/6d	6/8	£2. 11/4
1791	£1.11/2	£0.15/6	1/6d	6/8	£2.14/10
1791	£1. 3/11	£0.15/6	1/6d	6/8	£2. 7/7
1792	£1.	£0.15/6	1/6d	6/8	£2. 3/8
1793	£0.18/-	£1.10/6	1/6d	6/8	£2.16/8
1794	£0.13/2	£1. 4/6	1/6d	6/8	£2. 5/6
1795	£0.16/10	£1.15/8	2/-	10/-	£3. 4/6
1796	£0.14/6	£1.13/6	1/6d	10/-	£2.19/6
1796	£1. 0/7	£1.15/8	1/6d	10/6	£3. 8/3
1797	£0.16/9	£1. 4/9	1/7d	11/1	£2.14/2
1798	£0.17/3	£1. 8/-	1/6d	12/9	£2.19/6
1799	£1.17/6	£1.14/9	2/3d	13/3	£3. 7/6
1799	£1. 6/4	£1.16/-	1/2d	13/3	£3.16/9
1800	£1.15/-	£2. 5/6	2/6d	13/3	£4.16/3

Table 30
Swedish deal exports, 1700 to 1760, per dozen.

	Eastern Sweden to Scotland	Gothenburg to Scotland	Gothenburg total exports
1700	2856		
1701	887		
1702	586		
1703	106		
1704	783		
1705	1096		
1706	1755		
1707	843		
1708	438		
1709	409		
1710	310		
1711	438		
1712	113		
1713	281		
1714	325		
1715	476		
1716	168		
1717	15		
1718	0		
1719	1116		
1720	648	574	7,787
1721	454	365	6,200
1722	223	905	9,300
1723	379	-	10,100
1724	531	649	8,800
1725	440	1296	11,100
1726	467	2540	19,300
1727	603	3644	16,200
1728	489	1065	17,900
1729	698	1244	20,400
1730	1068	1089	17,100
1731	1163	1207	15,300
1732	878	1464	16,700
1733	1775	2937	23,900
1734	886	1967	21,400
1735	888	1368	25,200
1736	111	7188	32,400
1737	7445	3718	24,600
1738	686	5822	26,400
1739	480	8170	30,300
1740	781	4436	21,300
1741	460	2214	23,700
1742	495	4044	30,500
1743	489	6587	25,200
1744	1083	4858	16,300
1745	106	3955	15,800
1746	132	6840	24,100
1747	26	7633	22,100
1748	78	13096	26,900
1749	68	14222	27,000
1750	97	15268	32,700
1751	438	11486	21,200

Table 30 cont'd..

	Eastern Sweden to Scotland	Gothenburg to Scotland	Gothenburg total exports
1752	218	17660	33000
1753	144	13248	28300
1754	65	15583	33200
1755	363	12921	28700
1756	46	12766	36800
1757	105	9540	26400
1758	0	7986	24500
1759	0	8594	26800
1760	400	13127	29000

Table 31

Gothenburg deal exports, 1770 to 1800 per dozen

	Exports to Scotland	Export to Great Britain	Total Exports
1770		14,336	19,600
1771	10,559		20,900
1772	8,500		19,000
1773	9,246		22,000
1774	5,616		22,500
1775	7,362	23,380	27,300
1776	9,161		32,200
1777	12,224		37,900
1778	13,285		36,600
1779	11,424		33,100
1780	13,595	21,698	31,200
1781	11,548		26,300
1782	10,336		29,300
1783	9,409		31,900
1784	13,236		39,100
1785	14,512	23,645	34,400
1786	11,827		36,300
1787	13,922		40,100
1788	9,193		26,900
1789	9,375		29,600
1790	10,428	21,133	36,900
1791	11,564		30,500
1792	13,196		32,100
1793	6,975		22,300
1794	9,711		22,900
1795	9,675	16,311	22,300
1796	7,445		18,300
1797	5,801		17,200
1798	9,491		25,600
1799	6,203		20,900
1800	8,224	20,375	29,500

TABLE 32

Scottish freight rates from Gothenburg, per last, 1748 to 1800.

	East Coast	West Coast
1748	32 to 53/-	
1749		
1750		
1751	28/-	55/-
1752		
1753		
1754		
1755	30/-	
1756		
1757		
1758		
1759		
1760		53/-
1761		
1762		
1763		
1764		
1765		
1766		
1767		
1768		
1769		
1770		
1771	24/-	35/-
1772	30/-	46/-
1773	17 to 26/-	46/-
1774	20/-	
1775	27/-	
1776		
1777		
1778	26/- to 35/-	
1779		
1780	36/-	

	East Coast	West Coast
1781	48 to 52/-	
1782	50 to 66/-	
1783		
1784		
1785		
1786		
1787		
1788		
1789		
1790		
1791		
1792		
1793		
1794		
1795		
1796		
1797		
1798		
1799		
1800		

Table 33

Scottish cut timber imports from Baltic Russia, per dozen pieces, 1750 to 1783.

	Riga	Narva	Wyborg	St Petersburg	St P. & Narva	St P.& Wyborg	TOTAL
1750	8	25	-	-	-	-	33
1	72	-	-	-	-	-	72
2	-	-	587	-	-	-	587
3	10	-	-	13	-	-	339
4	-	-	-	416	-	-	736
5	-	-	-	29	-	-	29
6	12	-	-	-	-	-	12
7	15	-	-	-	-	-	15
8	31	-	-	-	-	-	166
9	-	-	-	52	-	-	52
1760	10	-	320	-	-	-	10
1	20	-	-	-	-	-	20
2	27	-	-	-	-	-	672
3	109	-	-	45	-	646	799
4	63	-	1972	703	-	-	2737
5	-	-	1421	594	-	1690	3706
6	297	-	3771	430	-	1851	6350
7	765	848	2569	2229	1440	-	7856
8	73	2060	1860	2282	329	-	6606
9	151	194	271	5553	2564	-	8733
1770	268	224	-	4458	-	-	4950
1	80	1722	1044	5927	-	-	8773
2	73	-	2206	5485	-	-	7764
3	53	-	2551	5126	-	-	7729
4	62	-	301	4082	625	-	5070
5	24	-	926	3178	-	-	4128
6	15	-	669	3912	-	-	4596
7	37	-	1184	5352	-	-	6574
8	-	-	759	1629	-	-	2388
9	-	-	564	2937	-	-	3501
1780	20	-	344	3914	-	-	4278
1	7	-	1388	3639	-	-	5033
2	15	-	720	1125	-	-	1861
3	38	-	554	5578	-	-	6171

Table 34

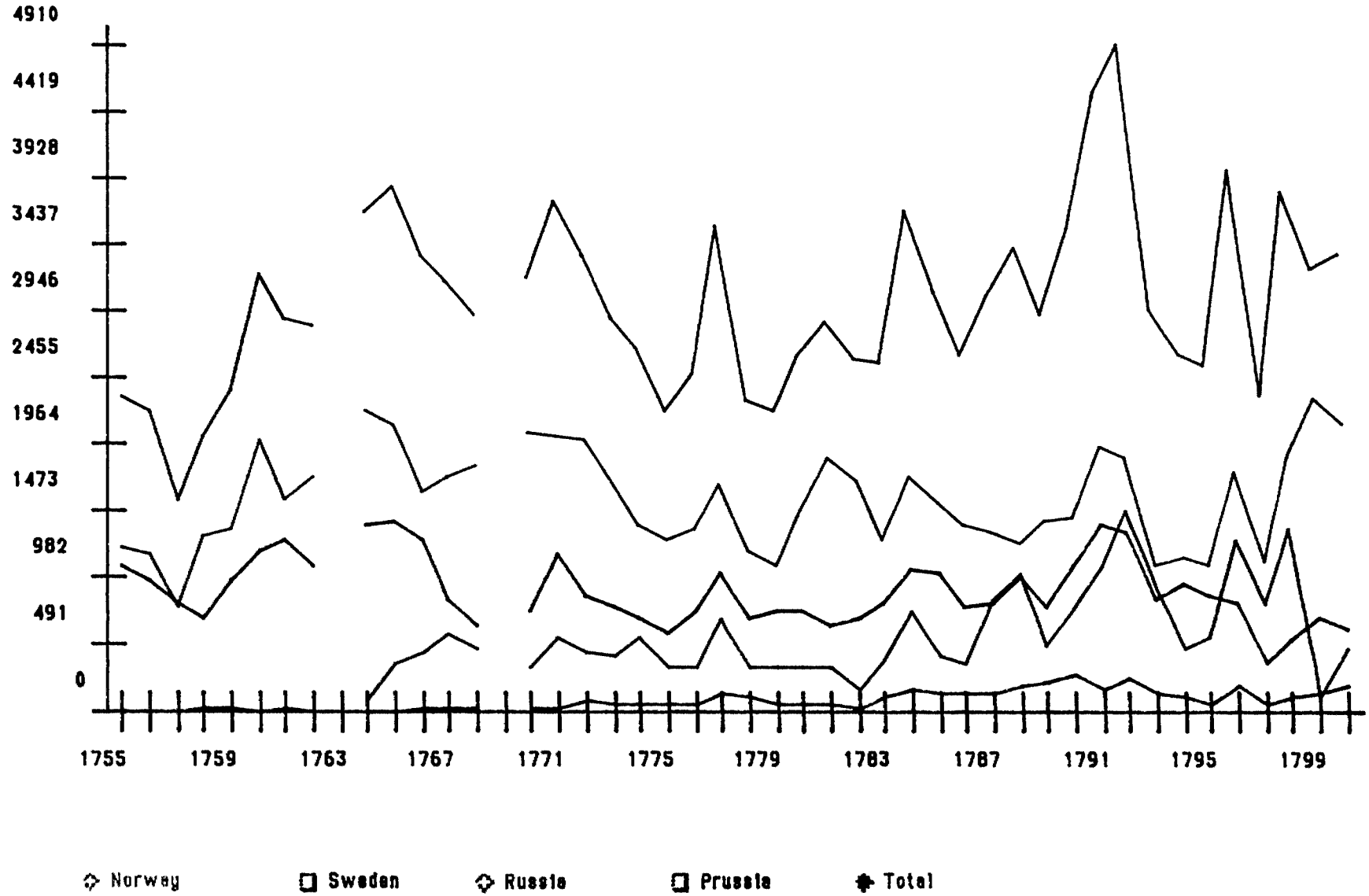
Scottish imports of Cuts of deals, per great hundred, 1755 to 1800.

	Norway	Sweden	Prussia	Russia
1755				
1756				
1757				
1758				
1759	71			
1760	293	92		
1761	171			
1762	83			
1763				
1764	105	62		
1765	141			
1766	90			
1767	100			
1768	161			
1769	-			
1770	218			
1771	236			
1772	219			
1773	651			
1774	162			
1775	151			
1776	196	76		
1777	139	94		
1778	181	62		
1779	102	65		
1780	138	78		
1781	230	85		
1782	289	118		
1783	165	101		
1784	203	587		
1785	208	119		
1786	125	103		
1787	303	223		
1788	428	143	120	90
1789	616	138	114	56
1790	567	166	155	54
1791	627	216	72	98
1792	645	206	106	98
1793	412	141	70	0
1794	366	142	95	65
1795	249	129	0	66
1796	581	120	58	112
1797	307	0	0	67
1798	416	52	0	120
1799	541	74	0	0
1800	629	62	74	56

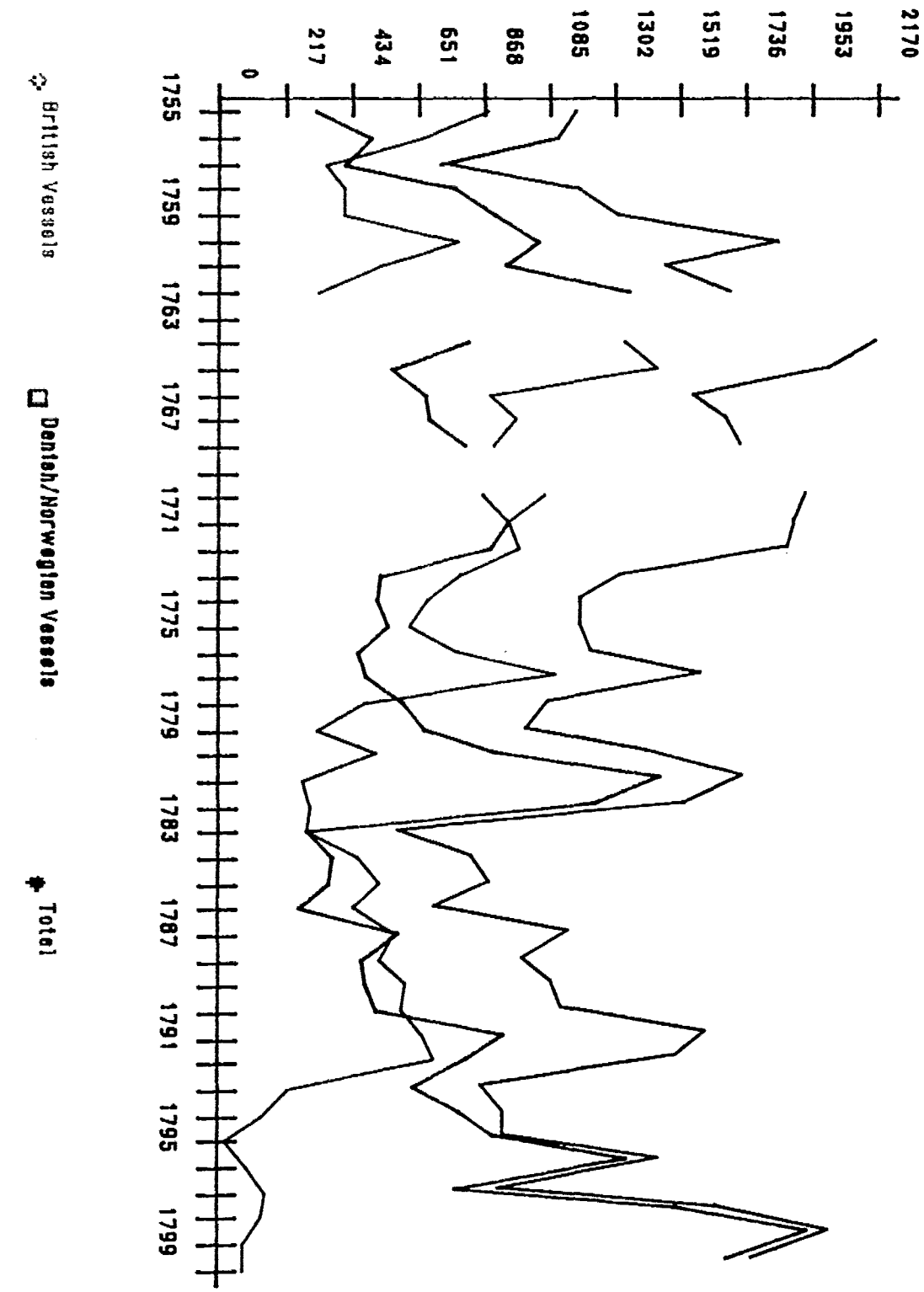
GRAPHS

GRAPH 2

Scottish Deal Imports, 1755 to 1800, per great hundred.

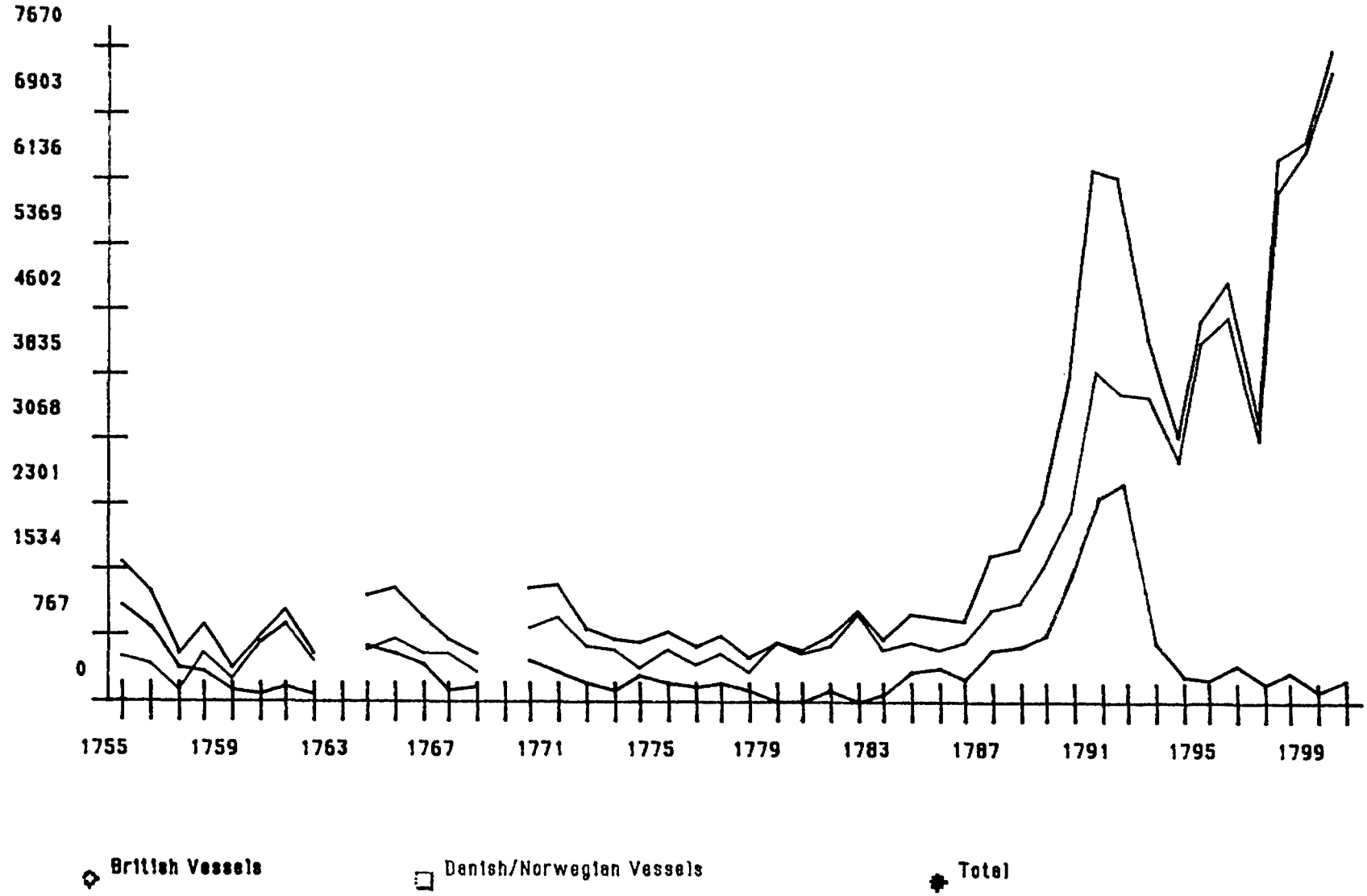


GRAPH 3

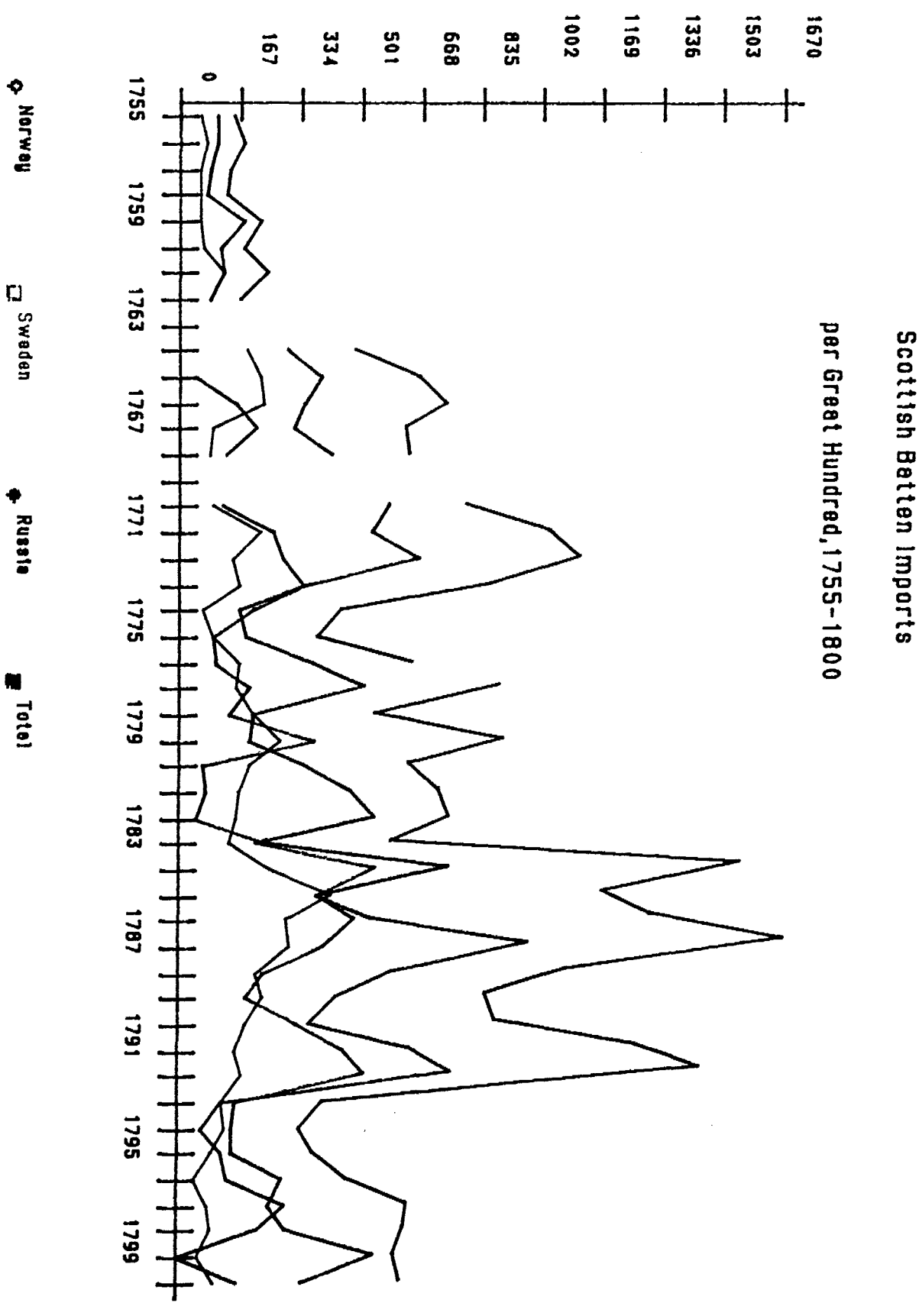

Scottish Deal Imports From Norway, per Great Hundred
1755-1800
2170
1953
1736
1519
1302
1085
868
651
434
217
0
1755
1759
1763
1767
1771
1775
1779
1783
1787
1791
1795
1799
British Vessels
Danish/Norwegian Vessels
Total

GRAPH 4

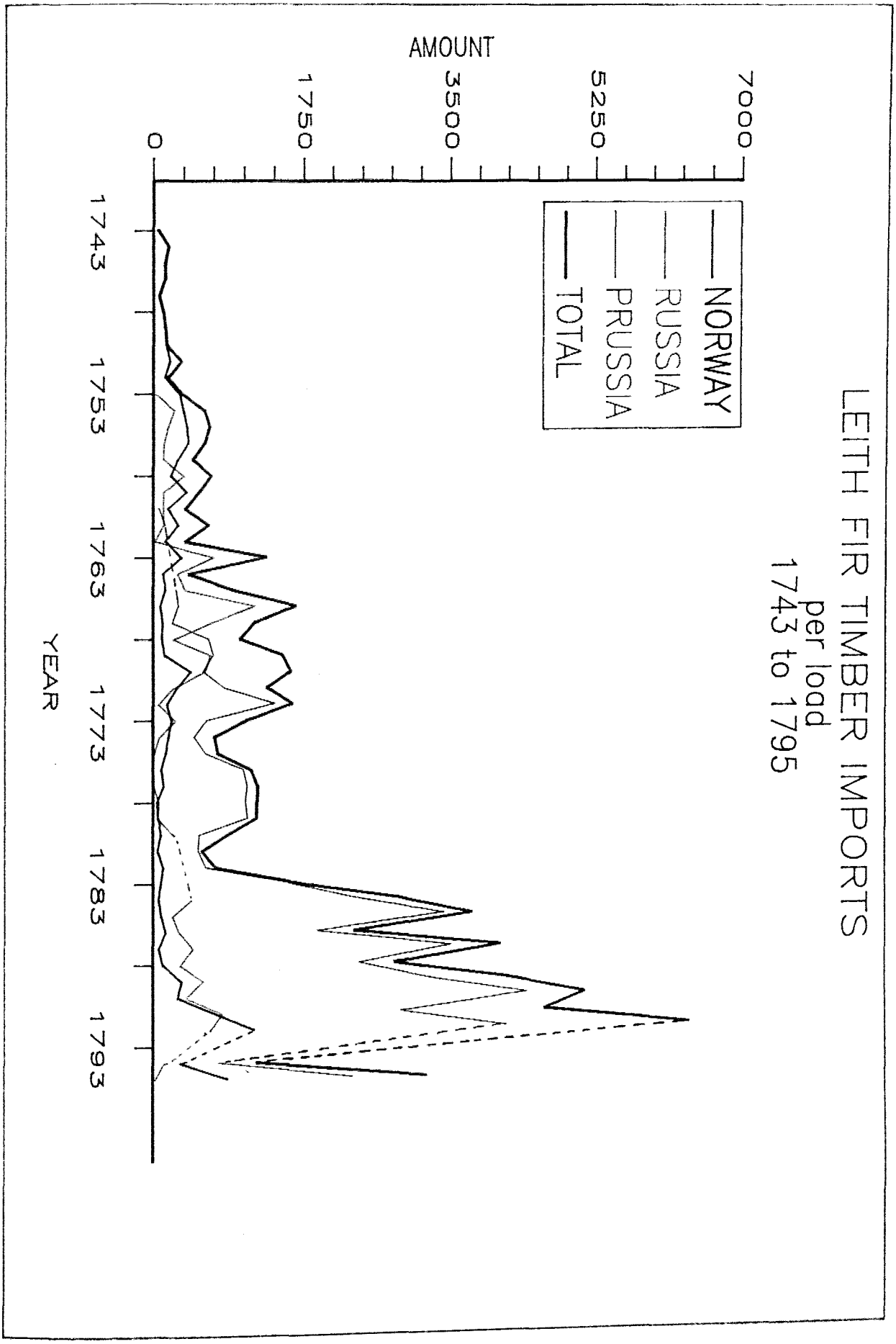
Scottish Fir timber Imports from Norway, per load, 1755to 1800.



GRAPH 6


Scottish Batten Imports
per Great Hundred, 1755-1800
0
167
334
501
668
835
1002
1169
1336
1503
1670
1755
1759
1763
1767
1771
1775
1779
1783
1787
1791
1795
1799
Norway
Sweden
Russia
Total

GRAPH 7


LEITH FIR TIMBER IMPORTS
per load
1743 to 1795
AMOUNT
0
1750
3500
5250
7000
NORWAY
RUSSIA
PRUSSIA
TOTAL
1743
1753
1763
1773
1783
1793
YEAR

APPENDICES

Appendix 1

Scottish softwood timber imports, 1755.

Items with a total annual value of over £50.sterling

	British vessels	Foreign vessels	Official value	
America				
Pine plank	773 loads		1-1½d per ft³	201.6.0
Pine boards	8 great hundred		£6.8 per g.h.	58.6 0
Denmark/Norway				
Ordinary deals	886.g.h.	316 g.h.	£3.15 per g.h.	10,818. 3.0.
Middle balks	25 "	71 "	£12.20 " "	1,535.17.4.
Fir timber	1,089 loads	511 loads	2-7d per ft³	1,499.19.10
Small balks	14 g.h.	51 g.h.	£5-8per g.h.	418.
Battens	83 "	16 g.h.	£2-3	248.10.10.
Staves	190 "	70 "	18/6-£1.6/-	197. 0. 0.
Small spars	48 "	25 "	£1.10-£1.15/-	117.10. 0
Handspikes	34 "	22 "	£1-£1.10/-	69. 7.11
Barrel boards	24 "	2 "	£2.10.-£3	68.15. 0
Pailing boards	21 "	82 "	£10-15	64. 8.11
Germany				
Fir timber	114 loads			106.14. 6
Clapboards	10 g.h.	3.g.h.	£4-9 per g.h.	85. 9. 6
Staves	64 "	8 "		71.16. 8
Ordinary deals	8 "			69. 3. 6
Livonia				
Great masts	6		£5-20 each	75.
Poland				
Staves	647. g.h.			646.15.0
Ordinary deals	39. "			353. 5.0
Spruce deals	6 "		£15-20	123.15.0
Clapboards	16 "			105. 1.8
Prussia				
Ordinary deals	7 g.h.			60. 3.0
Russia				
Fir timber	143 loads	100 loads		227.11.0
Ordinary deals	11 g.h.			96. 0.0
Sweden				
Ordinary deals	1061 g.h.			9,548.14.0
Battens	52 "		£2-3	130. 0.0

Appendix 2

Scottish softwood timber imports, 1800

Items with a total annual value of over £50 sterling

	British vessels	Foreign vessels	Official price	Declared price	Official value	Declared value
Denmark/Norway						
Fir timber	268 loads	7,399	2-7d per ft³	1/6d per ft³	£7,187.17	£28.469.10
Ordinary deals	85 g.h.	1,692	£3-15 per g.h.	£10.11/8d per g.h.	15,922. 2	18,808.12.
Middle balks	6 "	551	£12-20 " "	£17.11d "	8,913.17	9,511.
Battens	4 "	339	£2-3 " "	£9.9/3d	857. 3.	3,246. 2.
Deal ends	261 "	368	£1 " "	£4.9/3d	629. 7.	2,807.15
Spokes	9,820	31,474	£2.5/- per 1,000	£6.1/1d	92.18	249.17
Handspikes	58 g.h.	97	£1.5/- per g.h.	£1.9/9d	193.12	230.17
Middle masts	23	259	£1.10/- each	15/8d	423.	220.17
Small masts	14	451	8/6d "	8/10d	197.12	204.14
Spars	4 g.h.	10	£9 per g.h.	£13.2/5d	121.16	177. 3
Small balks	3 "	14	£6.10/- per g.h.	£8.9/7d	114.17	149. 8
Great masts	-	26	£5.20 each	£5.0.9d	321.16	128. 9
Wreck	-	-	-	-	125.17.	125.17.
Oars	2 g.h.	19	£4.10/- per g.h.	£5.15/7d	94.14.	121. 8.
Boats	101	16	-	-	101.15.	101.15.
Pailing	1 g.h.	100	12/6d per g.h.	19/8d	63.10	98.17.
Harrowbills	35 "	46	£1. per g.h.	-	81.16.	81.16
Hoops		41,383	£1.5/- per 1,000	£1.13/10d	51.15.	69.19.
Sweden						
Ordinary deals	452. g.h.	117	£3-15 per g.h.	£10.19/7d	5,118.15	6,242.9
Battens	69 "	33	£2-3	£7.6/1d	256.10	748.13
Wreck	-	-	-	-	185.	185.
Deal ends	49 "	14	£1 " "	£5.2/10d	62. 7.	320.19
Oars	9 "	4	£4.10/-	£5.17/3d	61.17	80.12
Germany						
Hoops	398,690	-	£1.5/- per 1,000	19/4d	498. 7	385. 4
Staves	854. g.h.	-		£8.19/5d	142. 6.	766.17.
Great masts	9	-	£5-20	-	118. 5.	136.10
Clapboard	13 g.h.	-	£4-9 per g.h.	£6.12/-	86. 2.	87.10
Prussia						
Fir timber	14,195 loads	161	2-7d per ft³	1/8d per ft³	£13,458.11.	59,204. 5
Staves 60-72"	574 g.h.	-		£7.15.11d	208. 4.	4,474.19
Ordinary deals	131 "	14	£3-15 per g.h.	£26.10.10	1,298.14	3,848. 8.
Spruce deals	10 "	4	£15-30 " "	£69. 7.10	331. 2.	1,020. 1.
Lathwood 5ft or less	228 g.h.	11		£3.18.10	161. 9	942.11
Deal ends	71 "	2	£1 per g.h.	£11.7.10	73. 5.	834. 9
Staves 36" or less		21		£1.5.3.	68.10	521.16
Great masts	50	2	£5-20 each	£8.15. 5.	645. 3.	451.16
Lathwood 5ft +	72 g.h.	2		£6. 0. 6.	50. 6	448.16
Treenails	122,308	-		£2.16. 2.	134.11.	343.10
Clapboards	13 g.h.	-		£11. 1.3.	87.12.	146.12
Middle masts	59	30.	£1.10/- each	£1. 8.2.	133.10	125. 7.

Appendix 2 con'td..

	British vessels	Foreign vessels	Official price	Declared price	Official value	Declared value
Poland						
Great masts	37	-	£5-20 each	£5.3.1.	463.17	190.15
Wreck	-	-	-	-	434.10.	434.10
Fir timber	432 loads	-	2-7d per load	1/4d per ft³	404.16.	1,483. 8.
Spruce deals	14 g.h.	2	£15-30 per g.h.	£58.15.10	354.	926
Treenails	132,450	-		£1.17.3 per 1,000	145.14.	246.12.
Middle masts	63	-	£1.10/-each	19/3d	94.10	60.13
Staves 60-72"	237. g.h.	-	6/8d per g.h.	£7.5.7.	79. 3.	1,728.17
Ordinary deals	7 g.h.	-	£3-15 per g.h.	£33.7.1.	64. 8.	237.
Ireland						
American staves less than 36"	3,585 g.h.	-	18/6d-£1.1/6d		3,585	
36-50"	119 "	-	" "		118.13.	
50-60"	64 "	-	" "		64. 7	
Russia						
Ordinary deals	397. "	32	£3-15 per g.h.	£26.9.9.	£3.864. 4	11,355. 7
Great masts	141	-	£5-20 each	17.2.11	1,756. 5	2,404.12
Battens	165 g.h.	5	£2-3per g.h.	13.5.10	423.17	2,253.
Middle masts	66	-	£1.10/- each	1.10.8.	99.	101. 2.
Deal ends	46 g.h.	10	£1.per g.h.	6.12.9.	56. 4	371.12.

Appendix 3

Letters between James Inglis Jnr, Edinburgh timber merchant and John Baxter,Architect of Gordon Castle, 1775.

Inglis to Baxter. no.1

I am with your esteemed favours of 16 inst which would have ansd in course but was much hurried last post. I observe you have occasion for a cargo of deals and battens to be imported this year for carrying on your operations at Gordon Castle. I am still engaged in the Baltic trade and I return my best thanks for your obliging offer and will be very happy to serve you or any of your friends in that way none can nor will do it on more reasonable terms.

The ports from which the best battens and deals come viz.

St Petersburg

Wyburg

Onega in the White Sea, but no vessel goes there under 400 to 500 tons and ²/3 of the cargo logs

Gothenburg

Christiania

The two first ports I have generally seen exceedingly fine cargoes from. Gothenburg for several years past has fallen in quality though I think the nature of the timber superior to any other port if they can be got good. From Christiania they are very good but comes high. I have in the course of business imported sundrie cargoes for buildings such as you are carrying on of logs rather than deals on account they can be cut out into any dimensions wanted - particularly from Riga, Onega and Memel, but the two former are much finer than the latter, though for two years past they have been of much superior quality to what they were and much freer of shakes, When you come to a resolution which port you choose the cargo to be imported from I will be glad to hear from you noting me the quality of each dimensions you wish to have and the larger the cargo so much the better as you'll have greater choice and more fine wood. I will in course advise you the prices deliverable at the mast or with duties paid, though I would prefer the former as I have no friend in your port to take the management of paying the duty. I have only to say further if you intend importing a cargo this year the sooner it is determined the better, that a proper vessel may be engaged so as to arrive and discharge while the season is tolerable as you may allow 3 months at least in the Baltic from her sailing to her arrival.

Inglis to Baxter, June 1775 no.2

I find there will be a difficulty in engaging a vessel of freight as is necessary for your port of so small a draught of water unless to discharge in the very middle of summer and I am much afraid it is now too late on that account as I find upon enquiry there is not above 10 feet of water at the highest spring tides and besides there is a considerable current in the river Spey which is difficult for ships to lye during inconstant weather. This information I have from shipmasters who pretended to be well acquanted with your river.. if its practical to discharge a vessel with safety this year it shall be done. You will be sensible from these difficulties how much shipmasters takes the advantage of raising the freights to outports where there is any danger or where they are not acquainted which enhances in proportion the price of goods. I have imported sundry cargoes into the Bay of Cromarty as safe a river as any in Britain as likewise into Inverness river but I was always under the necessity of giving a much higher freight but on the whole I cannot imagine there is any danger during the summer months for a larger vessel than you mention to discharge or lighten any number of feet even in the Bay which I understand your river is surrounded by and by which it enters even though the wind shouls blow gently from the East.

I have likewise been thinking as you'll need sundry other materials coming from this and must freight vessels for that purpose that you might get part that way or not an extravagent an expense providing you are needing such soon for use. I have remaining on hand from last years importation a lot of Onega logs about 2,000 ft which if sawn I am persuaded they will turn out as well and near as cheap as to import them directly. I can afford them at 11½d per ft where they lie and the quality a equal to Riga, the only thing I am afraid some of them may be shakers and I wish to serve you so as to meet your approbation in any way it is done and on the cheapest terms. You will observe I mean the logs to be cut here which I should give particular orders to have executed with propriety and shaped in planks and battens to the lengths you want as it would be too expensive to transport them as they are being from 18 to 42 ft long - this I only mean incase a cargo cannot be imported this year.

Inglis to Baxter no.3

I am with your esteemed favours of 4 inst wherein observe that your port of Speymouth does not admit of vessels larger than 130 to at most 140 tons burden. This is too small a vessel for timber from the Baltic and will occasion my paying a much higher freight than a larger one as the latter are always cheaper in proportion than the former - besides ports such as yours where there is any difficulty makes the port always higher and it is even with difficulty they will undertake it. I wish you had mentioned how many feet water there is in your port at spring and ebb tides and if they discharge on a beach or in a harbour.

I likewise observe that you would choose the cargo to consist of viz

1/3 battens $1\frac{1}{4}$ in thick $6\frac{1}{2}$ - 7 in 12 - 16ft
1/3 deals $1\frac{1}{2}$ and $2\frac{1}{2}$ " 11in "
1/3 " 2 in " "

I wish you had given me a exact specification of the dimensions you wished for in that case I could calculate the quantity of each kind the vessel would store which you know depends on the breadth and length as well as the thickness on the whole. Suppose the cargo reduced to a standard measure that is to say $1\frac{1}{2}$ in x 11 in x 11 and 12ft large. Such a vessel would not carry say stow above 35 hundred consisting of 120 to the hundred of that dimension perhaps not so many lower the quantitys of each kind you want shall the ship's in proportion as near as possible. Though I cannot promise for my lumber cargoes to be near the dimensions ordered. I am obliged to you for undertaking payment of the duties and shall inform you what is customary to be done or it is equally agreeable to me to deliver them at so much the hundred of each dimension. The ports I think that can be depended upon most, for quality are Wyburg Petersburg and Narva. From the first deals may be got from 9, 10 and 11 inch broad, the two others are sawn 11 inch broad in general, but I am much afraid by the time I have your answer it will be too late to engage a vessel to any of these ports and discharge at Speymouth. However, in the meantime I shall be looking for a vessel. The quality you may depend shall be as good as any from the ports and the lowest price I could afford them at with duty paid is £10.10 per standard hundred deals paid ready money or in 2 or 3 months after delivery, or at the mast at £9.5 per hundred upon calculation I find that is the lowest I can undertake at providing always I can procure a vessel this season.

Appendix 4

Fraserburgh 23rd May 1770

To James Ross Esq at Gordon Castle

Sir

In answer to yours of yesterdays date and in consequence of mine of the 21st current I am hereby bound that my vessel the Lady Saltoun and Peggy of this place that first fair wind proceed to Memel and there load a cargo of the best fir logs the vessel being 150 tons burden two-thirds part of them being 36 feet long or upwards and fourteen inches square or more, and the other third part to be of different lengthd and twelve inches square and upwards to be delivered on this side of the harbour of Speymouth for behoof of his Grace the Duke of Gordon you paying me upon the logs being delivered as above eleven pence sterling the cubic foot in name of duty and every other charge and seeing there will be a quantity of deals and battens needed to stow amongst the logs the deals are twelve feet long eleven inches broad and inch and a half thick and by the last advices from Memel cost there 9/- sterling the dozen first cost the battens I do not know the price of but these deals and what battens are got also the logs shall be of the best quality and the freight and price of the deals and battens shall be referred to you being fully concerned of your honour, my son John who was a fellow apprentice in Gothenburg with Mr Byers one of the partners in the House at Memel I think goes along with this ship and will be at the utmost power in getting logs and deals of the utry best sort. I was mistaken in saying in my last that Memel was in Russia I find it is in Polish Prussia but that is the place the Aberdeen and Leith folks get all their best logs from Onega was stopped and these Memel logs turn and smooth better for planks than the Onega Russia logs did, upon the vessels return sha shall proceed directly to Speymouth and deliver the cargo on this side of the river of Speymouth as is within expressed and if you think the deals or planks too dear advise me in course that I may write by post and take the smaller quantity of them. I am with the most profound respect and esteem,

Your much obliged St

Alex Harlaw

Appendix 5

James Inglis jnr to the Trustees for building a Repository

Edinburgh 22nd May 1773

In consequence of your advertisment for proposals of furnishing the necessary timber and deals or planks for the building the Repository for the Records of Scotland, I sent for a schedule which you have enclosed with the various prices marked thereto. You'll please to observe that I mean at these prices whole cargoes the quality of which I will warrant as good as any from the different ports, but is absolutely necessary for any person who are to furnish the various kinds and dimensions of the timber in general to know the quantities needed as likewise the terms of payments upon which the prices greatly depends. I beg leave to observe another thing, in place of purchasing planks by the running foot to agree for them by the hundred taking a proportion of thick and thin, as likewise battens all reduced to standard measure of 1½ inches thick 11 inches broad and 12ft long which I could engage to furnish at £8.8/- the hundred of 120. Upon an average taking a whole cargoe as they are imported from the vessel which you will find will come lower in general than purchasing by the running feet. I observe you make no mention of Onega wood which in my opinion is very little inferior if any to Riga or St Petersburg. I may say equal which can be furnished full as cheap if not a little lower, I have a cargo every day expected from Memel about 8,000 ft. and if I knew more explicitely your conditions, I may come to afford it a little lower than marked in the schedule. This far I will say there is none can or will serve you cheaper in every article as I confine myself totally to the wholesale way for years past.

Schedule overleaf.

James Inglis jnr, price schedule, May 1773.

Good Square Memel logs, 11-14in., of any length, per ft.	@ 10½d	ready money or 2 or 3 months credit at most
" " Riga of the same dimensions	@ 11½d	ditto
Memel logs sawn into any scantling, per ft cubed	@ 13 d	ditto
Riga logs sawn into "	@ 14 d	ditto
Three inch thick St Petersburg plank, 12-20 ft long and 11 to 12 in.broad,per running ft	@ 2 3/4d	ditto
Two and one half inch thick "	@ 2½d	ditto
Two inch thick "	@ 1 3/4d	ditto
One and one half inch thick "	@ 1½d	ditto
One and one fourth inch thick "	@ 1¼d	ditto
Three inch thick Gothenburg planks, 12ft long and 8 to 9 in.broad, per piece	@ 2/8d	ditto
Two and one half inch thick "	@ 2/-	ditto
Two inch "	@ 1/8d	ditto
One and one half inch thick "	@ 1/5d	ditto
One and one fourth inch thick "	@ 1/3d	ditto
One and one half inch thick St Petersburg battens 6-7 per running foot	@ 1 1/8d	ditto

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	Saltoun MSS
National Register of Archives(Scotland)	Carnegie and Shepherd Papers
	Erskine of Drum Papers
Orkney Archives	Balfour Papers
	Watt of Breckness Papers
	Traill-Dennison Papers
Perth Archives	Miscellaneous Papers
	Morison Papers
Riksarkivet,Oslo	Tollregnskaper
	Bernt Anker Copybook
	Norman and Co. Account books
	James Bowman Copybook

Scottish Record Office

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Board of Customs and Excise
Customs Quarterly port book E504
Ledgers of Imports and Exports RH2&RH2(
Minutes of Board CE1
Customs Letter books CE82

Commissary Court records

Register of Testaments C.C.8.8.

Court of Session papers C.S. 96

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